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LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and improve the character of the service rendered to the public.

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At the first regular meeting for 1894 of the finance committee of the Lake Carriers' Association which was held Tuesday in the offices of President Corrigan, the new wage card, which is to rule for the first months of the season of 1894, was arranged. The questions of shipping masters and private lights also came under their consideration. Mr. John Duff, of the firm of Duff & Gatfield, fuel dock owners at Amherstburg, and Andrew Hackett were present to arrange for maintaining private lights on Detroit river, and they will operate the lights as usual for next year. It has not yet been decided whether to maintain the Point Edward range lights for another year or not. A. R. Rumsey was again made shipping master at this port, and was in addition elected sergeant-at-arms of the finance committee, so that he has authority over all the shipping masters in employ of the Lake Carriers. The shipping master at Chicago will have two assistants this year, one of whom will be located at South Chicago. The shipping master at Buffalo and Cleveland will have one assistant each, and those at Ashtabula and Toledo will work by themselves. The card of wages is as follows:

STEAMERS OF THE FIRST CLASS, COMPRISING METAL STEAMERS HAVING WATER BOTTOMS AND TRIPLE EXPANSION ENGINES.

First engineers	$100
Second engineers	70

STEAMERS OF THE SECOND CLASS, METAL STEAMERS NOT INCLUDED IN CLASS 1, AND THE LARGER WOODEN BOATS WITH TRIPLE EXPANSION ENGINES.

First engineers	$75 to 90
Second engineers	60

THIRD CLASS STEAMERS, COVERING ALL BOATS NOT INCLUDED IN THE TWO FORMER CLASSES.

First engineers	$60 to 75
Second engineers	50
First mates	50 to 70
Second mates	35 to 50
Cooks	35 to 50
Helpers (to cooks)	10 to 15
Firemen	25 to 30
Wheelsmen	25 to 30
Watchmen and lookouts	20 to 30
Deck hands	12 to 15
Oilers	25 to 30
Firemen, when fitting out and laying up, boarding themselves	$1 per day

ON CONSORTS AND SAIL.

First mates	$30 to 45
Second mates (when carried)	25 to 35
Cooks	25 to 30
Seamen	25 to 30
Boys	12 to 15

At a general meeting of the association, held last Thursday afternoon in President Corrigan's office, some of the committee appointed at the annual meeting of the association made partial reports. The committee on unloading of vessels reported that nothing in the way of reductions in charges had been obtained yet from the owners of the ore docks, and they were continued in service. Since then the dock companies have announced a reduction of 15 per cent. in the wages of their workingmen on the docks, which is taken as a sign that they will reduce the ore dock charges from 16 cents per ton to 12 cents, the price asked by the vesselmen. The dry dock and fuel committees had equally unsatisfactory progress to report, and the latter was increased by the addition of J. C. Gilchrist, M. A. Bradley, H. A. Hawgood and Capt. W. S. Mack.

Secretary Keep was directed to ask the Light-House Board, through Major Adams, of Detroit, to change the light at White Fish Point from a red flash light of the third order, to a red flash light of the second order, and that they erect, as soon as possible, the light they have already recommended for Vermillion Point.

A SIMPLE BAROMETER.

About the simplest barometer that one can have—and it is said one of the most efficient—is made of two bottles and some water. One of them should be an ordinary wide mouthed pickle jar, filled with water to near the top. The other should be a long, slim flask, which will go into the jar. This should be inverted and plunged into the jar, so that it will not reach the bottom. This arrangement gives a complete barometer. In fine weather the water will raise into the neck of the flask higher than the mouth of the pickle bottle. In wet or windy weather it will fall to within an inch of the mouth of the flask.

NOTHING LEFT BUT THE HULL.

The steamer Elliott, which arrived at Savannah Sunday, from Bluefields, passed the wreck of the United States corvette Kearsarge on Roncador reef last Tuesday morning. She went within about five miles of the Kearsarge, affording an opportunity for a good view of the hull. The captain of the Elliott says there is nothing left of her but the hull. The decks have been swept clean. The smoke-stack, masts, and everything above board are gone. The hull is in a very dangerous place, but so far as is to be seen it shows no signs of going to pieces.

MAINTENANCE OF NAVIES.

With all large naval powers in Europe the possibility of an increase in the navy is a question of great importance. The cost of the army and navy is reducing many countries in Europe to a condition that is little better than one of bankruptcy, and this is telling on manufacture. However the cost may be temporarily distributed, it, of course, comes back to the producing classes, who must pay for it all. Agriculture in Europe is already taxed to its utmost, and the artisan must take up the burden. In this country the matter is, as yet, of little importance, because the expenditures are on a comparatively small scale. And it is likely they will be kept small, comparatively, for a good many years, possibly until a change comes over the whole matter. This change is likely to come through sheer exhaustion of the ability of European governments to stand the strain, and hence some kind of an understanding of what different countries shall be allowed to maintain in both army and navy. So far the construction of a navy in this country has hardly been disadvantageously felt, because the supplying of the material necessary for the purpose has developed the ability to manufacture for other purposes. But, of course, if the development goes on far enough it will be felt. The fact that the industry of this country is taxed much less for what cannot be looked upon otherwise than a useless purpose, is greatly in the interest of manufacture in the United States. It has this less burden to bear, and hence is freer to expand.

HEROIC RESCUE AT SAVANNAH.

A subscriber at Savannah sends the New York *Marine Journal* a story of unusual heroism, which deserves to be inscribed upon the scroll of fame. The British bark Mary E. Chapman was ashore on the 25th of February, in the breakers on the Stone Horse Shoals, near Tybee Lighthouse, the worst shoal on the coast of Georgia. Dr. J. G. Graham, the quarantine officer of the port, was on board the tug Cynthia, which had gone to the rescue of the bark's crew, and was unable to get very near her. It had been blowing a gale for two days, with tremendous seas. Two men belonging to another vessel had made an ineffectual attempt to reach the bark and rescue the crew, who were clinging to the wreck, but their boat was almost swamped, and only after a hard struggle did they succeed in getting back to the tug. Their failure dissuaded any others of the tug boat men from attempting again to approach the stranded vessel, but night was coming on and the chances were that the men on the wreck would certainly succumb to the cold and exposure before morning, even if their vessel held together. At this juncture Dr. Graham, in spite of all protests, jumped into a dory, and taking with him one of his negro boat hands, succeeded in reaching the bark, and accomplishing the rescue of ten men, who almost certainly would have otherwise been lost. When it is considered that Dr. Graham is a landsman, his conduct must be admitted beyond all praise. The negro with him, when asked if he was not afraid to risk his life replied: "I am not afraid to go anywhere with the doctor."

NEWS AROUND THE LAKES.

CHICAGO, ILL.

Special Correspondence to The Marine Record.

The steamer Philip Minch loaded 80,000 bushels of wheat last week for Buffalo at 4 cents.

A dredge commenced work last week dredging out the soil for the Chicago Ship Building Co.'s new dry dock.

The employees at Miller Brothers' shipyard commenced working 10 hours a day on Monday, at $2.75 per day.

Capt. James Comstock will have command of the steamer G. W. Johnson, of the Shore's fleet the coming season.

The steamer C. F. Beilman was towed by Dunham Co.'s tugs to the C. & D. Armour elevators Monday, to load corn for Buffalo.

S. S. Burke, of the N. M. T. Co., went to Manitowoc Tuesday to hurry up the work doing on the steamer Lawrence, at Burger & Burger's shipyard.

The engineers of the Western Transit Co.'s steamers in winter quarters at this port, arrived this week to fit out the machinery of their respective steamers.

The steamer Arthur Orr, which has been chartered by the Delaware & Lackawana Line for next season, went to Counselman's elevator at South Chicago, to load her hold full of grain on Monday.

Capt. James Carr, formerly of the steam barge Annie Laura, will command the steamer White and Triant the coming season, vice Capt. John Jenks, who has resigned and gone into the grocery and provision business in this city.

The Independent Fuel Co. purchased the schooner C. C. Trowbridge from Capts. Anderson and Gunderson for $550. The schooner is at Miller Brothers, having her masts taken out, she will be used as lighter for coaling up steamers in the river and harbor.

At Miller Brothers shipyard the steamer W. H. Barnum was in dock for a new "Sheriffs" wheel and recalking, the schooner Radical for new quarters and recalking, she will receive new mizzenmast. The steamers Charles Reitz and Van Raelte were in for some repairs.

The steam barge Emma E. Thompson, Capt. W. E. Hudson, will leave here Saturday night for Manistee, to load lumber for this port. She will be the first of the lumber fleet to start out this season. Joseph Butts is chief engineer and Mike Mulvay second engineer on her.

F. G. Rogers, the newly appointed chief engineer of the Lehigh Valley Transportation Co., was here Monday and Tuesday, overlooking the company's steamers in winter quarters here. He left Tuesday afternoon for Buffalo, and will send the engineers appointed to those steamers along soon to fit out their machinery.

The steamer Chicora, of the Graham & Morton Transit Co., arrived here Tuesday morning from St. Joseph on her first trip to this port this season. The company's steamer R. C. Reid was here last week. They will make trips to this port once a week until April 1st, after which they will make tri-weekly trips until summer passenger business commences.

Capt. A. D. Campbell sold his interest in the steamer Walter Vall and consort Baltic to J. H. Pauly, Milwaukee. Capt. Campbell takes the steamer Roanoke in part payment. The deal was consumated by Cook, Colbick & Co. The schooner Mary E. Perewe was sold by the Marinette Barge Line to Capts. James and Thomas Taylor, of Michigan City, consideration $3,500.

It is reported that Capt. Cyrus St. Sinclair has tendered his resignation as local inspector of hulls for the port of Chicago. Two excellent men are already in the field seeking the appointment of Inspector, and Assistant Inspector of hulls for this port, Capt. Frank D. Root, as Inspector, and Capt. James Hogan as Assistant Inspector. They are both well known and would make good, capable, trustworthy inspectors.

The V. O. T. Co.'s tug Calumet left this port for Milwaukee, to tow the steamer Queen of the West here to load grain. J. H. Palmer her principal owner, sent Capt. Vosburgh to take charge of the steamer, but Capt. Edward Saveland, of Milwaukee, who was master of her last season and owns an eighth interest in her, objected to that arrangement, and placed her in the hands of United States Marshall Wiswell, before the tug could take her from the moorings.

At South Chicago the Chicago Ship Building Co. is pushing the work forward on the new steel steamer they are building with a force of about 150 men, the steamer is of the following dimensions: 328 feet over all, 44 feet beam, 27½ feet depth of hold, engines triple expansion with cylinders 23 and 38 and 62 by 40 stroke, two scotch type boilers 14 by 12 feet, the engine and boilers will be built by the Cleveland Ship Building Co. The steamer will have 12 gangways and hoisting gear complete for the package freight business.

Judge Grosscup rendered his decision last Friday in the case of Edward Smith et al, owners of the steamer W. H. Barnum, against the City of Chicago. The Barnum, while passing up the river with a cargo of coal collided with the Harrison street bridge and suffered considerable damage. The owners of the steamer sued the city for damages, alleging that the bridge tender turned the bridge toward the steamer as she was about to enter the west draw and that a collision was inevitable. The court sustained the claim of the owners but decided that the master on the steamer was at fault in not indicating clearly which draw he was headed for and the damage was, therefore, divided between the city and the steamer.

The Northern Michigan Transportation Co. and the Seymour Transportation Co. have consolidated. The consolidated company takes the name of the Northern Michigan Transportation Co., and will occupy the offices and docks used by the old company of that name, at the foot of Michigan street. E. W. Seymour becomes general manger, and B. L. Burke remains as general freight and passenger agent. The steamer City of Charlevoix and Petoskey will be operated at the Chicago-Mackinac line, and the Lawrence and Puritan will ply between Milwaukee, Mainstee and Frankfort, Mich. The company is now receiving freight at their ware house, foot of Michigan street. The steamer City of Charlevoix will be the first boat to leave Chicago for Northern Michigan Ports. She will leave on April 4th. J. J. Klein, Milwaukee, is president of the company and S. S. Burke, Chicago, agent and treasurer.

MARINE CITY.

Special Correspondence to The Marine Record.

Capt. J. A. Ward is putting a new foremast in the barge Mingoe.

The work of brining and fitting out the Curtis and Brainard fleet will begin next week.

The McElroy steamer will make a bid for the patronage of the traveling public, and, as she will carry passengers only, it is thought that she will be very popular.

Belle River presents a very busy spectacle. Men are at work on nearly every boat, calking, painting, brining and repairing them to get them in shape for the season's business.

The Rooney Dredge Co's dredges and tugs, T. M. Moore and Fannie Tuthill, are being fitted out and will soon resume work at the St. Clair Flats, on their twenty foot channel contract.

Capt. John Robertson, ex-inspector of hulls, district of Huron, will this season have command of the fine sidewheel steamer Greyhound of the Red Star Line. Capt. Andrew Yax will go as mate.

The Riverside will compete with the Star-Cole boats and it is thought a rate war will ensue. Last fall the Star-Cole boats carried passengers to Detroit and return, a distance of ninety miles, for ten cents.

Capt. George Lester arrived last week from Bay City to look after his vessel interests at this port. The Tempest will be entirely recalked and minor repairs will be made to put her in condition for the season's work.

The keel of the new McElroy flyer has been laid at Anderson's yard and the mill is running day and night getting out the timber for her. The work will be pushed as rapidly as possible in order to have her out and running June 1st.

Blood & Hart have completed some extensive repairs to their dock and coal chutes. The pockets have been raised about ten feet and they now have the highest fueling chutes of any similar dock on the lakes. Last season they experienced some difficulty in fueling large steamers, but the high pockets will enable them to fuel any boat.

Capt. William Rouvel will leave for Buffalo this week to look after his barge, the Maria Martin. Six years ago he purchased the vessel and altered her rig to that of a barge. It is now his intention to restore her schooner rig and to sail instead of tow, during the coming season. She will be given a new foremast at Buffalo and will then sail to this port to receive her topmasts, jibboom, etc.

Bay City capitalists have purchased the Toledo and National salt wells at this port and will erect a plant of about five hundred barrels capacity. The Cranage vacumm system will be used. Employment will be given to about one hundred men. This will increase the out put of Marine City's salt blocks to 1,500 barrels per day. It is all shipped by water, the bulk of it going to Chicago and Duluth.

The steamer Arundel, of the Star-Cole Line, arrived here Saturday evening from Detroit on her first trip of the season. Together with the Idlewild and Grayhound the Arundel will form a daily line between Detroit and Port Huron. The Idlewild and Arundel will leave Port Huron in the morning, returning in the evening, and the Greyhound will leave Detroit in the morning, returning about 9:00 p. m.

A canvass of the port shows the following masters' appointments. Steamers:—Mohegan, William Hagan; Santa Maria, G. W. Case; Cherokee, John Hagan; W. H. Barnum, W. M. Smith; W. H. Sawyer, John Jenkins; Edward Smith No. 2, David Carrier; Lizzie Madden, William Tomlin; Masoba, Joseph Cottrell; Toltec, James Taylor; George King, William Maxwell; Wotan, Joseph Shackett; Tempest No. 1, George Lester; Tempest No. 2, J. C. Sterling; Miani, J. A. Ward; M. Sicken, John Kuhn; Kate Buttironi, C. E. Norton; S. C. Reynolds, Walter Cottrell; Salina, John Miller; Greyhound, John Robertson; Riverside, George Fish; Abercorn, James Lutch; Harry Cottrel, Phil Rice. Schooners and barges:—John M. Hutchinson, Henry Holland; Mingoe, Albert Suelgrove; Dayton, William Rose; Uranus, John M. Balfour; Fostoria, Charles Garry; Thomas Gawn, Julius Lorinsen; Teutonia, W. M. Meldrum; Melvina, Julius Rogers; Charles Spademen, George Gulett; E. J. McVea, W. Meldrum; Emma L. Coyne, Henry Lester; Keepsake, Alec Miller; Alice Richards, Charles Recor; Maize, John Jones; Lyman Casey, Charles Tart; Maria Martin, William Rouvel; Reindeer, L. Garlock; James Mowatt, O. P. M. Titus; C. L. Young, James Koble; Levi Rawson, Frank Endres; B. B. Buckhout, John Bell; Homes, Ramer Bell; Buckeye State, Richard Tomlin; Myron Butman, Henry Valfour; Shawnee, M. P. Scott; Ataunto, Medad Cook.

PORT HURON, MICH.

Special Correspondence to The Marine Record.

The boats lying at this port are making light repairs for the coming season.

The schooner Hunter Savidge left Monday for Sand Beach to load supplies for Alpena.

James Lynn, the well known marine reporter of this port is visiting Buffalo, Cleveland and Detroit this week on business.

Capt. Inman, of Duluth, has purchased the tug W. B. Castel, of Henry Howard, of this city. Capt. Inman has also purchased the steamer Belle Cross and the barges from Hawgood & Avery, of Cleveland. Capt. Robinson has been appointed master of the steamer Monarch and Capt. Foote has been appointed to the United Empire for the coming season.

Charles D. Thompson, of this city, has purchased the barge Clinton from Capt. Currie and is now making a lighter of her. She will be fitted up in first-class shape and taken to the "Soo", where she will be stationed for the season with the tugs Brockway and Merrick. The tug Brockway has received a new pilot house and large repairs; she is also receiving a new steam steerer.

TORONTO, ONT.

Special Correspondence to The Marine Record.

The schooner Highland Beauty is fitting out.

The steamer Columbian will ply between Chippewa and Buffalo.

Capt. David Sylvester has well-nigh recovered his normal health.

Repairing has begun on the schooner Emerald and the steamer Niagara.

A new spar and foremast are being put into the schooner Grimsby.

The tug Clark Brothers is fitting out and will begin running to the Island shortly.

A new Scotch-type boiler is being put into the steamer A. J. Tymon by the Bertram Engine Co.

The steamer A. J. Tymon will run this year between Port Colborne, Crystal Beach and Buffalo.

The steamer C. H. Merritt is for sale. She is lying at Kingston. Her capacity is 400 passengers.

The tug Fannie Arnold, of Spanish river, is having her engines compounded by the Bertram Engine Co.

Coghill & Carson have the contract and have begun work on the extension of Yonge street sewer into the bay.

The Bertram Engine Works Co., are componnding the engines in the steamer Wyoming, and also in the Clinton.

Capt. Andy Thompson left on Monday for Pt. Arthur to superintend the tug fleet for Messrs. Graham, Herne & Co.

Messrs. Grant & Witfield are negotiating for a tug at the Welland canal, to be used in connection with their contract at the Don.

Besides her new boiler, the steamer A. J. Tymon is to have a new upper cabin and a general overhauling and repainting.

Capts. A. Ure and Williams are overhauling and thoroughly repairing the schooner Speedwell at the foot of George street.

Capt. James McMaugh and Chief Engineer Sam Brisben passed through the city last week en route to Owen Sound to fit out the Algonquin.

Capt. P. McSherry will likely have command of the steamer Carmona this season, and Capt. Scott will be in the iron steamship Campana.

Capt. Joseph Goodwin has had the steamer Camperdown lengthened six feet, and will put her on the Island route to carry freight this summer.

The mild weather of the last two weeks made such an impression on the ice in the harbor that the fresh breeze of Sunday drove it out into the lake.

Sunday's high wind having driven all the ice out of Toronto harbor except a little around the wharves, navigation may be opened here at any time now.

The steamer John Hanlan is going to be started by the new Island Ferry Co., to ply between the city and Hanlan's, in connection with the steamer Chicoutimi.

Messrs. Freeland Brothers have begun work on the extension of their new wharf at Yonge street. When completed this will be the finest wharf at present existing along the water front.

A new bowsprit is being put into the schooner St. Louis, and she is receiving minor repairs. Her skipper, Capt. Gribben, is just recovering from a severe attack of bronchitis and influenza.

Messrs. Davidson & Hay have bought an engine and boiler from John Perkins, and have engaged George Dixon to build the hull of a new tug, to take the place of the one burned so tragically last autumn at North Bay.

The Hamilton Steamboat Co. intended to have its boats running between Hamilton and Toronto by the middle of April, but if the present weather continues, it may start at an earlier date. Last year the first boat ran on April 29.

Capt. Jas. Ewart has gone to Midland to look after some slight repairs to wale strakes, etc., on the steamer Rosedale. A controlling interest in the steamer Algonquin has been purchased by Messrs. Crangle & Haggerty, owners of the steamer Rosedale.

Mr. W. R. Freeland is making extensive alterations and improvements in Yonge street wharf. When they are completed he will have one of the most complete wharf properties on the Canadian side of the lake. Mr. W. A. Geddes leased this property last fal', which is a guarantee that a good business will be done and every accommodation given to steamers making it their headquarters.

Capt. Robert Johnson, of Hamilton, has died from inflammation of the lungs. He was 62 years of age and was one of the oldest seamen, having sailed for many years between Hamilton and Montreal. The last boat he had charge of was the Nepigon, running between Montreal and Quebec, but recently he had been employed by the Canadian Colored Cotton Mills Co., at Hamilton.

At Oakville the fleet of the Toronto Ferry Co. is being put into thorough repair. The famous Sadie is receiving a new engine, and is to be converted into a double-ender like unto the Mayflower and Primrose. Messrs. Doty are doing the work. The steamer Canadian is being newly planked from the waterline up. About April 15 the steamer Luella will resume traffic between the Island and the city.

During a recent gale a raft of timber belonging to an American firm broke loose in Niagara River, and came down over the falls. These logs are now stranded all round Lake Ontario, five of them lying on the Island here, and Mr. McLennan, representing the lumber men, was in the city on Saturday to engage Capt. P. McSherry and the tug Ada Alice to go round the lake and gather up the timber. Operations will be begun as soon as possible.

Capt. A. H. Crawford of Bowmanville was in the city on Tuesday. He will again take charge of the yacht Cleopatra this season and will soon start to fit out. The engineers of the Niagara Navigation Co.'s fleet commenced fitting out last week. Extensive repairs have been made to the steamer Chicora during the past winter, consisting of new guards, main deck, promenade deck, stanchons and bulwarks. An electric light plant has been placed in her.

A report from Port Hope states that a large quantity of lumber, varying from 25 to 40 feet long and 3 to 5 feet long, is strewn along the beach. It is supposed to be part of the raft that broke loose at Tonawanda and was carried over the Falls when the ice broke up. One piece, when hauled out, was found to have nearly 100 feet of chain attached to it. The tug Ada Alice has been engaged to cruise around the lake and pick up all this drifting timber.

Mate Carroll, last year in the propeller Algonquin, has been appointed first mate in the R. & O. N. Co. steamer Columbian. Capt. Murray has been put into command of the steamer Columbian. He was in the Garden City last season. Capt. Cooney will ring the bells in the steamer Garden City this incoming summer, and Capt. Wigle himself will take charge of his ship, the staunch Lakeside. The Lakeside is going to run independently of the Garden City and Empress of India this year, and expects to start plying between this port and St. Catharines during the first part of April.

KINGSTON, ONT.

Special Correspondence to The Marine Record.

It is stated that the Richelieu & Ontario Co.'s boats will begin their journeys early in May.

A new boiler is being placed in the steamer Ocean.

Capt. Andrew Miller will be in command of the Empire State.

Capt. Charlebois will be seen at his old post on the steamer Islander.

Capt. Chester Rees will again command the steamer St. Lawrence during the approaching season.

The Richelieu & Ontario Navigation Co. has decided to open a branch office in Buffalo, and arrangements are now being made.

Ira Folger will be master of the steamer Maud and Capt. Carnegie will probably take command of the steamer Princess Louise.

The fast steamer Magnet is receiving special attention, in her fitting out for the freight and passenger traffic between Hamilton and Montreal.

Capt. J. H. Scott, late master of the propeller Persia, has been appointed commander of the steamer Carmona, to run between Toronto and Rochester.

Capt. Allen will look after the interests of the steamer Pierrepont this year, and he expects to have his old "stand-by" paddling water by the 17th of this month.

Engineer Robert McColl, who has been employed on the steamer Empress of India for the past five years, has been appointed to the charge of the big steamer Chippewa's machinery.

The steamer Hero is ready for this season's work. The crew will be the same as last year: Captain, G. Johnston; mate, W. Bloomfield; first engineer, W. Hazlett; second engineer, M. Redmond; steward, J. Tilton; purser, E. Horsey.

Capt. E. W. Estes, of Clayton, will command the steamer Island Wanderer this year. He was for several years captain of the steamer St. Lawrence. The Wanderer has hitherto been commanded by Capt. Forester, of Chippewa Bay.

CLEVELAND, O.

Special Correspondence to The Marine Record.

One of the masts which was taken out of the wrecked schooner Pelican is being placed in the schooner Moonlight, at Ashtabula.

In several of the Mutual and Menominee boats manholes have been cut from the engine room into the water tight compartments aft, to give the compartments a chance to dry out.

The Ship Owners' Dry Dock Co. will enlarge the north basin at their dock so that it will admit any vessel now built. The basin will be lengthened about thirty feet, the work commencing in January.

The new fire-boat buildiug by Thomas Manning Jr., for the city, will be launched to-day at 2:30 p. m. With the completion of this boat the city will have two excellcnt fire fighters for all localities near to the river.

Mr. Sinclair Stuart, of the United States Standard register of Shipping (not the Inland Lloyd's, as we inadvertently said last week) was obliged to defer his visit to the lakes for a week, but is expected in the city to-day.

Cleveland lodge No. 2, Marine Engineers' Beneficial Association, have issued their new directory and year book. It is a neat little red-bound volume, handy for the pocket, and yet chock full of matters of interest and instruction.

It is stated that M. A. Hanna & Co. have contracted to furnish the Canadian Pacific Railway Co. with about 160,500 tons of coal this season at Owen Sound, and Morris, Ellsworth & Co. will send about 140,000 tons to Fort William, Rossport, Huron Bay and Algoma Mills.

Martin Burns, chief engineer of the steamer J. H. Outhwaite, for the past six years, has accepted a position with the city water works and consequently will not sail this season. It is gratifying to note from time to time that responsible situations on shore are filled by marine engineers, and in this case, however much Mr. W. C. Richardson, as managing owner, or the firm of H. J. Webb & Co., might desire to retain the services of Mr. Burns, we are sure they feel pleased to learn of his advanced position.

NEWS FROM ALL PORTS.

The Lackawanna boats assigned to the Green Bay line this season are the Russia, Cuba and Grand Traverse.

The light-keeper, Mr. Phister, recently appointed for this port, has been assistant light-keeper of the beacon light at Erie, of which city he has been a resident since boyhood.

The first big deal in vessel property of the season was consummated Tuesday by the transfer of the iron steamer Roanoke by J. H. Pauly, of Milwaukee, to Cook & Campbell, of Michigan City, and the purchase of the steamer Vail and barge Baltic by Mr. Pauly from the Michigan City parties. The Baltic and Vail have a grain carrying capacity of 120,000 bushels. Mr. Pauly says that the amounts for which the three vessels figured in the deal were as follows: Roanoke, $28,000; Vail, $75,000; Baltic, $50,000.

An effort was being made between the parties interested to effect a settlement in the case between Capt. Frank B. Hackett of the tug Home Rule and the steamer Imperial. When the Home Rule was on fire at Amherstburg the Imperial turned a stream on and sent in their bill which Capt. Hackett refused to pay claiming that the fire was out before the Imperial came along. On Monday the case was settled, the Imperial parties withdrawing the suit and each party agreeing to pay its own costs. Certificates have been made out, releasing the bondsmen.

The consolidation of the Northern Michigan and Seymour transportation companies has led to arrangements which threaten to encroach materially upon passenger traffic that has hitherto been enjoyed almost exclusively by the Flint & Pere Marquette boats. The steamers Puritan and Lawrence will constitute a daily line between Milwaukee, Ludington, Manistee and Frankfort, where, under a traffic arrangement with the Toledo, Ann Arbor & North Michigan, close connections will be made with the passenger trains of that road. This will constitute a new lake and rail passenger and freight route between Milwaukee and the East. The steamer Petoskey will run from Chicago to Manistee, Petoskey and Mackinac, while the City of Charlevoix will run between Milwaukee and Mackinac, touching at Sheboygan and Manitowoc if sufficient encouagement is afforded. The steamers are to go into commission about April 1. The general management of the line will be in the hands of E. W. Seymour, while B. L. Burk will act as general freight and passenger agent.

APPOINTMENTS OF MASTERS AND ENGINEERS.

H. J. Webb & Co., Cleveland, O.: Steamers, Samuel Mitchell—captain, Thomas Wilford; engineer, James Clancey. J. H. Wade—captain, Charles Swartwood; engineer, Geo. McMonagh. Wm. Chisholm—captain, Richard Call; engineer, Thomas Blain. J. H Devereux—captain, Simon Gilmore; engineer, A. McDonald. Roumania—captain, R. J. Cowley; engineer, Edward Prince. Iroquois—captain, Thos. Jones; engineer, Silas Hunter. J. H. Outhwaite—captain, Louis Stone; engineer, R. A. Davidson. Schooners, J. J. Barlum—captain, George Brock. H. A. Barr—captain, John McKeighan.

The Ogdensburg Transportation Co., Ogdensburg, N. Y.: W. L. Frost—captain, E. B. Shay; engineer, James Chestnut. W. A. Haskell—captain, D. Murphy; engineer, A. D. Houghton. W. J. Averill—captain, W. De Wait; engineer, Harris Higgins. Gov. Smith—captain, W. S. Shay; engineer, James Turnbull. J. R. Langdon—captain, Harvey Brown; engineer, John N. Philips. F. H. Prince—captain, D. A. Kiah; engineer, D. J. Costello. H. A. James—captain, James Owens; engineer, Robert Chestnut, jr. A. McVittie—captain, W. H. Williams; engineer, Morris Gore.

Union Line, Buffalo, N. Y.: Chemung—captain, Walter Robinson; engineer, Henry C. Jordan. Owego—captain, John Byrne; engineer, Chas. W. Wall. Tioga—captain, A. A. Phelps; engineer, Geo. Freitshe. H. J. Jewett—captain, D. O. Bordeaux; engineer, William Skelton, jr. Rochester—captain, W. B. Garden; engineer, N. Johnson. New York—captain, John M. Clossey; engineer, Joseph Howlett.

G. K. Jackson, Bay City, Mich., has appointed the following masters: Steamers, D. Leuty—captain, D. Morrison. Burlington—captain, W. Powrie. Schooners, Celtic—captain, John Lovell. Bottsford—captain, Chas. Jackson. G. K. Jackson—captain, Curtis Jackson.

North Western Transportation Co., Detroit, Mich.: Harvey H. Brown—captain, E. C. Gatfield; engineer, John H. Hand. S. R. Kirby—captain, James Fraser; engineer, William Watts. E. M. Peck—captain, C. H. Chamberlain; engineer, J. H. Foster. Fayette Brown—captain, D. Girardin; engineer, Nic Anderson.

Roby Transportation Co., Detroit. Mich.: Geo. W. Roby—captain, John Duddleson; engineer, J. Collins.

Alger, Smith & Co., Detroit, Mich.: Volunteer—captain, Thos. Hackett; engineer, P. B. McCabe. Gettysburg—captain, William H. Rollo; engineer, W. P. Wenner. Torrent—captain, S. H. Carrie; engineer, J. M. Cronenneth.

John T. Hutchinson, Cleveland, O.: Germanic—captain, J. McNeff; engineer, C. Price. Rube Richards—captain, M. H. Place; engineer, H. Harris. Queen of the West—captain, J. De Beau. E. C. Hutchinson—captain, L. G. Vosburgh. May Richards—captain, T. K. Woodward.

D. C. Whitney, Detroit, Mich.: Merida—captain, W. H. Hutcheson; engineer, James Balfour. Tampa—captain, John Ivers; engineer, Charles Murrett. Mecosta—captain, John Leonard; engineer, George Francomb. Lansing—captain, C. G. Ennis; engineer, James Coreyean. D. C. Whitney—captain, D. Critchet; engineer, Joseph Lacey. Nipigon—captain, A. C. May; engineer, J. Egan. Barges, Ashland—captain, George Dennis. Melbourne—captain, George Cooper. Wayne—captain, Benjamin Cole.

G. W. Close, Berlin Heights, O.: C. W. Elphicke—captain, F. C. Rae; engineer, John Smith.

Corrigan Line, Cleveland, O.: Australasia—captain, J. W. Morgan. Bulgaria—captain, A. H. Gain. Caledonia—captain, R. J. Lyon. Italia—captain, C. H. Cummings. Schooner Northwest—captain, Lewis Leonard. Engineers for this line are usually appointed by the masters.

CONTINUED ON PAGE 9.

SHIPBUILDING ECONOMICS.

One of the best arguments for protection for the American shipbuilding industry is contained in the interview given below, wherein Mr. J. F. Waddington, who was for a long time engaged in ship building in England, his native country, and who has until recently been superintendent of the Sewall shipyard, at Bath, Me. The interview appeared in London *Fairplay*, and is a part of a letter from New York, written by an English correspondent, who was spending some time in this country. It has many points of great value to all interested in the welfare of the lake shipping industries. The letter is dated February 10 and is as follows:

"On the subject of shipyard work and wages in America, I have recently been seeking data from sundry sources. Mr. J. F. Waddington, who until recently was superintendent of the steel shipbuilding plant of A. Sewall & Co., at Bath, Me., and who had had previous experience at San Francisco and in other ports of this country, though he learned his trade in Belfast and was foreman of a large plant on the Mersey before coming here, has been giving the result of his experience and observations about as follows:

"The first thing I noticed in the United States was that they have no system of apprentices, as in the British yards. This I found was owing to the boys staying at school longer, say 16 to 17 years of age, and then they look for cleaner work and require too much pay, a small boy of 12 picking up bolts and washers never getting less than 50 cents a day, and a rivet heater's minimum being $1 per day on time, and working up to $2 on piece, as against 4s. to 10s. paid boys in British yards. The rates for riveting on piece in the States, on the Lakes and East seaboard are nearly the same. Riveting frames, floors and reverse frames on ground run $2.75 per 100 rivets, a hole-cutter and screwer-up being allowed each squad of riveters, and these being paid $1.50 to $1.75 per day by the firm. Straight work on steel decks goes about the same. This is for ¾ rivets. Shell riveting runs about $3.25 per 100 for bottom, and $3 for sides on the Lakes for ¾ rivets. On the ship I have just built at Bath I paid $3.50 per 100 rivets on the shell for ⅞ rivets, and $4 for the garboard, stem and sternberths, each gang having hole-cutter and screwer-up allowed, also a trouncer for the holder-on when necessary.

"On the Lakes generally (and such was my own custom) the men are allowed to earn all they can on piecework, but at the Union Iron Works, San Francisco, the men are only allowed to earn up to $3.50 a day riveting, so the men generally earn this amount by 2 or 3 o'clock p. m., and then go home for the rest of the day. At some yards—the Bath Iron Works, for instance—they work on what is known as the task-work system, that is the riveter must put in say 230 rivets for a day's pay (ten hours) of $2.30, and what rivets they put in over this number they are paid extra for. I have known 600 rivets often to be put in at this work, so that they earned as much as at what I call unlimited piecework. But if they are on a difficult job and only drive, say, 100 rivets, they get their $2.30 per day just the same. Chippers and calkers get about the same pay as riveters, which varies from $2.25 per day of ten hours on the Lakes and Eastern seaboard to $2.50 per day at Boston, New York or San Francisco, which are the highest paid yards.

"Of course there is no hard-and-fast rate of pay throughout the States, the prices always varying according to the district and class of work. At Cramps', Philadelphia, and the Union Iron Works, San Francisco, they use men who were formerly carpenters to do the straight templating for the plates on the shell, using regular platers, or fitter-ups as they are called in the States, to do the more difficult work. A plater's day work pay varies from $2.50 to $3.50 per day throughout the States, and owing to the lack of apprentices it is usual to have journeymen doing boys' work, such as putting on butt-straps, liners, etc., which is a considerable loss to the firms.

"Another disadvantage the American shipyards are under is the high pay which laborers and unskilled help demand and get. With the exception, perhaps, of Southern yards, where colored help keeps the rate down, no laborer gets less than $1.50 per day, and it ranges up to $2 per day or over, according to the district and work done, which work would be done in British yards for from 3s. to 4s. 6d. per day. Platers working piecework on the shell get $5 to $7 per plate in the States, according to the vessel, doing all the work and handling from the plate-rack to putting it on the vessel, and $3 to $4 for deck-plates.

"Calkers on piecework are paid 3 to 4 cents per foot of shell-seams calked. I have heard of it being done for less, but would not consider the men able to make a good job at less price, as they would only go over it with one tool instead of three. Shell butts are paid from 4 to 5 cents per foot. A horsed butt (one man holding the calking tool while his mate strikes it) is practically unknown, though I had it done for 5 cents per foot. I have known lead to be kept in the store of a yard for the express purpose of calking the butts, and I have scraped lead out of shell butts on many American ships, both government and mercantile, when in drydock. The pay of ship carpenters varies from $1.50 per day in Maine up to $3.50 or $4 in San Francisco. Shipjoiners are paid $2 to $3 per day. With regard to hours, it is almost universal to work ten hours per day, having only one hour or less for dinner at noon, and generally the same hours prevail on Saturday, or in some yards they stop an hour sooner. Last summer I had the hours changed at Bath to 10½ hours per day for the first five days, so that we could have Saturday afternoons off with a total of 59 hours per week, while 54 hours is the usual week's work in British yards."

"Mr. Waddington added that in most American yards (he only knew of two exceptions) it is customary to make a set of wooden moulds from the lines of the frames on the mould loft floor, this having been the old custom in wooden shipbuilding. It was being generally recognized, however, that this practice was not suited for steel ships, for which the screeve-boards placed beside the bending block is much preferable and cheaper, and of course, much more accurate than when made to light-wood moulds, which bend in the handling and alter with the weather. He has no doubt that the screeve-boards will be adopted on this side before long. He also noticed that the inspection of vessels in process of construction by the surveyors for the various insurance companies was not nearly so strict or exacting here as that of Lloyds' surveyors; in fact, American builders are allowed much more latitude than British builders are. He considers that a vessel built on the Lakes or Eastern seaboard would cost from 40 to 50 per cent. more than a British-built vessel, while one built on the Pacific Coast would cost about ten per cent. more still, owing to higher wages and freight on steel, etc., though the climate of the Pacific coast is very favorable for steel shipbuilding, which is more than can be said for the Lakes or East. Mr. Waddington's last words to me were that he hoped nothing he had said would hurt the feelings of his American friends, though perhaps, his criticisms if I used them (and I have endeavored to give his words as accurately as possible) might not seem altogether favorable to the States. The only facts I wisned to elicit from him were to give a fair and accurate idea of the position of labor in American as compared with British yards, and I trust that as presented in the foregoing the object has been attained."

THE STEAMSHIP CAMPANA.

It is freely reported that the steamer Campana has been sold at Toronto to parties who will operate her on Lake Erie, for $50,000. Just how much truth there is in this cannot yet be definitely learned, but it is said that she will trade in connection with the Erie & Huron Railroad. It has been reported, however, that the control of this railroad has been sold by the Bickford heirs to a syndicate of New York capitalists, while as a matter of fact they have not parted with their stock, and this throws slight doubt on the story about the Campana.

The Campana is an iron boat, built in Glasgow in 1873, in the yard of Aiken & Mansel, and is well-remembered by Mr. Robert Logan, the marine expert who has recently located in Cleveland, as the first boat sent out of that yard after he entered upon his apprenticeship there. She was built to the order a Frenchman named Mayer, who wanted her for a cattle ship. She has a peculiarly constructed bottom, in accordance with the idea of her owner, who wanted the hull so constructed that a channel would run the length of the ship, on each side of the keel, which would tend to stiffen her, making the cattle ride easier, and also furnishing a good supply of water to the twin screws. His scheme acted well to the extent that it decreased her tendency to roll somewhat, but he soon found out that steadiness and stiffness were two different qualities, as when she did pitch she did so so suddenly that the cattle were thrown off their footing, which they could not regain, as she was very slow to right. Therefore he sold her, and she was put into the coal trade; but the shape of her bottom caused such a waste of hold room that she proved unprofitable for that traffic. She was then sent to the lakes in 1888, being cut in two amidships at Montreal, put together at Port Dalhousie, and sent to Lake Superior. She did well there for a season or two, and was then brought to the lower lakes, where she was placed in a Canadian line, running from Kingston to Cleveland, thence going to Windsor, and thence to Chicago, and returning the same way. Last year she was fitted out, but was not placed in commission.

The Campana is about 250 feet in length between perpendiculars, and has a speed of about twelve miles an hour. She has two compound engines, each with cylinders 26 and 52 inches by 33 inches stroke. She had two Scotch-type boilers 12 feet 9 inches in diameter and 10 feet 6 inches long. She has, as said before, twin screws 11 feet in diameter by 18 feet 9 inches pitch.

A curious case of the invisible being photographed was whan the Great Eastern was taken prior to her being broken up for good. When the photograph was made the photographer was not a little surprised to find great big letters extending the whole length of the ship advertising some one's patent pills. It appears that these letters had at one period of the ill-fated vessel's downward career been painted on as an advertisement. They had, however, been subsequently painted out with tar, and, although invisible to the eye, the camera had detected and recorded them. This seems improbable, but it is quite within bounds. When the letters were painted on the vessel's side they stood above the surface; any subsequent coat of paint would cover them and the ground beneath them equally, so that although in one color there would be projections which would catch the light and be photographed.—*Engineering.*

FLOTSAM, JETSAM AND LAGAN.

A new steam hammer, said to be the largest in the world, recently put up in the Krupp Gun Factory, at Essen, is so delicately adjusted that it could be made to beat out a hair spring.

It is said that there is at Dodge City, Iowa, a pile of coal equal to 1,300 car loads, and the railroad company is engaged in building a board fence around it. This large accumulation is due to the mildness of the winter. Owing to the high price of coal in the Northwest, the people in Minnesota are using peat as fuel.

A correspondent in a trade paper recommends that sheet iron (about No. 32,) instead of card-board, be used for mounting blue prints. If the prints are very large the sheet iron should be heavier. It will not warp or ware out. If it becomes bent, it can be straightened out, while if a card-board mounting is once bent it is spoiled.

From all accounts at least one, if not more, of the large tramp-steamers recently announced as having been contracted for with Clyde builders on Glasgow account are likely to remain on paper, owing to the draught of investing fish in the nets of the young disciples of St. Peter having turned out to be miraculously small.

The steel work of the great tower for London at Wembley Park, in London, is now erected to a height of 150 feet, and it may be completed in the spring. London is also to have a gigantic wheel, 300 feet high, on the plan of the Ferris wheel at Chicago, and it will have attached to its circumference 40 passenger cars, each to seat 40 persons.

The steel steam yacht Semiramis is now on the ocean, or soon will be, bound to the port of Philadelphia. She has been purchased by Mr. Anthony J. Drexel, of Philadelphia, and at last accounts had about completed her fitting out at Marseilles for the ocean voyage Westwards. This vessel will be an important addition to the steam yacht fleet of America.

From latest experiments it would appear that oil fuel will soon attain a measure of practical value for motive power. The tank steamer Baku-Standard recently made the trip across the Atlantic using only petroleum residuum as fuel, and burning but twenty tons of it, instead of thirty tons of coal per day. Twelve fewer men of a crew in the engineer's department were also required.

According to intelligence from Genoa, a new Italian Shipping Co., has been formed for maintaining a fortnightly service of boats between Italy and La Plata and Brazil. Signor Repetto, shipowner, of Genoa, and Signor Mazzino, a deupty, are the promoters. The boats to be employed are the Re Umberto, Andrea, Doria, Caffaro, America, Guilo Mazzino, Romolo, and Remo.

Steamers are used on a continuously increasing scale in the German sea-fishing industry. The first fishing steamer was used in 1884, and in 1888 there were twelve, in 1890 twenty-four, in 1891 forty-six and in 1892 sixty-one. Each of them costs on an average £6,000, so the whole fleet represents about £370,000. They all use German coal and the requisite ice is also collected close to their respective ports.

The Shipmasters' Society, London, have been endeavouring to induce various Governments to issue charts similar to the United States North Atlantic Pilot-Chart. Amongst other Governments applied to was that of India, and Capt. Froude, the secretary of the Society, has received a communication from the Meteorological Reporter, to the effect that the matter has been placed before the Government and a decision arrived at that should circumstances permit the Indian Government will issue a monthly pilot-chart of the Indian Ocean.

The auxiliary screw style of merchant vessel does not appear to have been a success. The Maria Rickmers, a five-masted vessel so equipped, was, it will be remembered, lost on the voyage around the Cape of Good Hope, never having been heard from after sailing. It was believed that she was shorthanded, rather topheavy and turned turtle. London *Fairplay* states that the only other modern auxiliary vessel afloat is the Severn, a bark of 1,364 tons, with engines of 80 horse power, built at Glasgow in 1892 by Russell & Co., who also constructed the Rickmers, and now trading between Baltimore and Rio Janeiro.

The battleship Indiana returned to Philadelphia on Thursday afternoon, with a record of 15.65 knots to her credit, as the result of her unofficial trial off the Delaware Capes. In speaking of the trip, Edwin S. Cramp, superintending engineer, under whose direction the trip was made, said: "The Indiana on this trial has already shown a marked superiority over what was to be expected in the class of vessels of which she is a representative. Despite her great breadth of beam, she was not in the least clumsy, but handled very easily. She steered finely and turns magnificently, and we have every reason to be more than satisfied with her performance."

LONGEST SWING SPAN IN THE WORLD.

A bridge is now in course of erection across the Missouri river, between East Omaha and Council Bluffs, which will be remarkable when completed as possessing the longest swing span in the world—520 feet—being 15 feet longer than the swing span of the bridge over the Thames river, in Connecticut. The structure has been designed by Prof. J. A. L. Waddell, of Kansas City. The construction of the pier of this swing span was completed a few months ago and presented many features of interest to engineers. From a long article in *Engineering News* it appears that the work was begun by sinking a steel caisson for a foundation, much as A. P. Boller started work on the swing span of a large bridge in New York City a year ago. The outer shell of the caisson is 40 feet in diameter and the inner 20 feet, the latter spreading out at the base to join the former and thus give a cutting edge. Both shells are made of half-inch steel, reinforced at the lower edge, where they meet, by two bands of inch steel, one inside and the other outside. The two shells were kept in their proper relative positions by braces running between them, of which there were twenty in all, made of half-inch plates. The caisson proper is 16 feet high. Above this the two steel cylinders extend to a height of 100 feet, making a total of 116 feet from the cutting edge to the top of the cylinder. Above the caisson the plates are reduced in thickness to ⅜ of an inch, and are braced by bars and rods rather than the heavier and more costly plates required in the lower part. The friction of the earth against such a long cylinder is very great, and to reduce it a number of pipes run down the whole length of the caisson and shell. These open at the bottom of the caisson and at intervals of 10 feet above, so that by forcing water through them it was possible to diminish the hold of the surrounding earth on the steel. The space between the two shells was filled with rubble concrete. The sinking progressed with no more than the usual delays; as the shells went down under the weight of the concrete placed between them, aided by the removal of the earth within by means of bucket dredges, plates were added to the top until the whole was at the required depth. The masonry pier built on top of this cylinder is of limestone backed by concrete. It is 38 feet in diameter and 18½ feet high.

HOW A TRADE PAPER HELPS.

A successful manufacturer, says an exchange, when asked why he patronized trade papers so largely to the neglect of other methods of advertising, replied: "Men who do not read their trade papers and keep posted in their business are usually poor customers. If I sell them a good lot of machinery they do not know how to use it, and report it a failure, or we have to run after them, lose time and money to get them agoing, and make the sale stick. But those who read and are posted know how and succeed. Such men would not read circulars if I were to mail circulars to them. They see my 'ad,' reguarly in the trade paper, and know I have an established business, and when they want anythiug in my line, write me, and don't whine about price or what time they can get from others, buy, try, and have no trouble, and pay the bill. Give me such a class of customers as I get by such judicious advertising all the time." His experience is that of successful merchants. The trade paper keeps its readers in touch with the times; with the currents of trade and commerce, it puts money in his purse in many ways. It is a preventive against sloth and rust. It helps to devlop the best side of man's commercial life.

A NEW SHIPPING BILL.

Representative Charles Tracey, of Albany, New York, has introduced the following bill, No. 5,757, in the House of Representatives, which has been ordered printed and referred to the Committee on Merchant Marine and Fisheries:

A BILL TO ENCOURAGE AMERICAN SHIPPING.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That on and after the first day of July, eighteen hundred and ninety-four, any citizen or citizens of the United States, or any corporation created under the laws of any of the States thereof, not less than ninety per centum of the capital stock of which shall be owned by citizens of the United States, may purchase the whole of any steam or sail vessel built in a foreign country or owned in whole or in part by an alien or aliens, and said vessel shall be registered, free of duty as to her hull, spars, appliances, outfit, and equipment (including boilers, engines, and machinery, if a steam vessel), as a vessel of the United States by a collector of customs in the United States in the same manner as though said vessel had been built in the United States and as herein further provided: Provided, That said citizen or citizens or corporation, before the issue of said register, shall, under regulations to be prescribed by the Secretary of the Treasury, have given a bond to the United States, with sureties satisfactory to the collector of customs, in a penalty equal to the value of the vessel so purchased, that said American owner or owners will build in American shipyards a vessel or vessels of an aggregate tonnage and value not less in amount than that of the vessel so admitted to registry.

SEC. 2 That, on being satisfied that a bond has been given as aforesaid by said citizen, citizens, or corporation, the Commissioner of Navigation shall direct the bill of sale or transfer of the foreign-built vessel so acquired to be recorded in the office of the collector of customs of the proper collection district, and the collector of customs shall thereupon register such vessel as a vessel of the United States in the manner now provided by law for the registry of vessels built in the United States. Such vessels shall not be employed in the coastwise trade of the United States or in trade on lakes or rivers within the United States or on the Great Lakes.

SEC. 3. That such vessel shall be subject to the provisions of law, so far as applicable, regulating the registry of vessels built in the United States and before the issue of registry to such vessel as a vessel of the United States the collector of customs of the proper collection district shall cause such vessel to be measured and described in accordance with the laws of the United States, which measurement and description shall be recited in the certificate of registry to be issued under this act. Such vessels shall be subject to the provisions of law so far as applicable, regulating the inspection of vessels built in the United States.

SEC. 4. That no foreign-built vessel more than eight years old at the date of application for registry shall be registered under the provisions of this act.

THE THINNEST METAL SHEET.

An interesting metallurgical achievement has been lately recorded at the Hallam Tin Works, near Swansea, Wales, a metal sheet of the finest appearance and most marvelous thinness ever yet produced. The details show that the iron from which the sheet was rolled was made on the premises, worked in a finery with charcoal and the usual blast, afterward taken to the hammer to be formed into a regular flat bottom, from thence conveyed to the balling furnace, and, when sufficienty heated, taken up to the rolls, lengthened, and cut by shears into proper lengths, piled up, and transferred to the balling furnace again; when heated it was passed through the rolls, back again into the balling furnace, and, when duly brought to the proper pitch, taken to the rolls and made into a thorough good bar. On being taken now to the tin mills and rolled until it became thinner than twenty-three grains, and afterward passed through the cold rolls, to give it the necessary polish, it stands on record as the thinnest sheet of iron ever rolled; that is, the data show a sheet of 10x5½ inches, or fifty-five inches surface, and weight but twenty grains, which, being brought to the standard of 8x5½ inches, or forty-four surface inches, is but sixteen grains, or 30 per cent. less than any previous, and requiring at least 4,800 to make one inch in thickness.

OIL-DISTRIBUTING SEA ANCHOR.

A cheap and simple device which may prove to be of especial usefulness to fishing vessels in a sea way is an oil-distributing sea anchor recently invented by Thomas W. Wilson, a seaman of the United States navy, serving on board the United States training ship "Portsmouth." It consists of a triangular frame of wood cross-lashed at angles and provided with a span of three legs. Across the interior triangular space of the frame is stretched a piece of canvas, fitted with eyelet holes and laced through these eyelet holes to the frame. To back and support the canvas a piece of netting is laced to the frame. In the middle of the canvas is a patch, to which is stitched a bag, consisting of two thicknesses of canvas. The space between these bags is the oil chamber. At the trailing end of the outer bag a simple valve may be placed, or the outer bag may be perforated with sail needles. A tow line from the vessel is bent to the span. A simple rubber hose or tube connects with the oil chamber, and leads to the vessel, being seized to the tow-line at intervals so as to insure its being kept slack while the tow-line is under tension. On board the vessel a pump or bulb syringe is employed to feed the oil into the oil chamber of the distributor as may be desired. For fishing vessels the device may be kept attached to the anchor by a rope of sufficient length to insure that the device shall be awash when in use. The device can then be streamed when the anchor is let go. The anchor may be of any size, and offers a wide field of usefulness.—*Baltimore Journal of Commerce.*

ALUMINUM PRICES OUTLOOK.

The *Ohio Valley Manufacturer* predicts aluminum will be sold this year in Europe at 45 cents a pound. About a year ago it declined to 50 cents, but subsequently rose to 75 cents. It is prophesied that aluminum will be produced in enormous quantities and at prices which will permit many new uses. The manufactory at Newhausen, Switzerland, has increased its dynamo capacity to 4,000 horse-power, and made improvements in the processes, so that it proposes to make the price 45 cents a pound or lower. At this figure, it is declared, the price of aluminum will be cheaper than that of copper, if the bulks and not the weights be considered, owing to the lower specific gravity of aluminum. It is and has been cheaper than tin of the same bulk for some time.

MARITIME LAW.

THE ACTION UNDER AN INSURANCE POLICY—JUDGMENT—IMPORTANT CASE. In the Admiralty Court Mr. Justice Barnes delivered judgment in the action brought by the Anglo-American Steamship Co., of Liverpool, against the National Marine Insurance Association, Limited, of London, to recover £1,500 on freight (valued at £5,500) insured in the steamship Main, at and from New Orleans to Liverpool, the Main being destroyed by fire. The defendants alleged that the cargo on which the freight insured was expected to be earned was never shipped, and therefore, the policy did not attach. The plaintiffs said the valuation could not be reopened.

Mr. Joseph Walton, Q. C., and Mr. W. F. Taylor appeared for the plaintiffs, and the defendants were represented by Sir Walter Phillmore, Q. C., and Mr. T. G. Carver.

In the course of his judgment, his Lordship said: The plaintiffs bring their action upon a policy of insurance upon the freight by the steamer Main, valued at £5,500, and insured by the defendants for £1,500, on a voyage at and from New Orleans to Liverpool. The allegation is that there was a total loss under that policy, for which the defendants are responsible. The defendants allege that the freight insured never was at risk, and the policy never attached. In addition they have pleaded that only a portion, amounting to £2,800 or thereabouts, was ever at risk under the policy, and that the cargo was shipped at lower rates of freight than had been intended, when the policy was made, amounting in all to £3,250, and of that £950 or thereabouts was paid to the plaintiffs in advance, and was not at risk; that the plaintiffs have been paid under other policies sums amounting to more than £3,250, and that, therefore, they have been fully indemnified against loss of freight. The facts are in a very short compass, but they give rise to questions of some difficulty. The policy sued upon was effected on the 18th of November, 1891, upon freight valued at £5,500, and the amount underwritten by the defendants is £1,500. The plaintiffs being the owners of the Main at the time when she took out that policy, had their vessel sailing outwards from Hamburg to New Orleans and this policy was taken out in anticipation of her obtaining a cargo from New Orleans to Liverpool. At the time the policy was effected the valuation of £5,500 was a reasonable and proper valuation on the expected freight, having regard to the rates then current. It appears that the Main, on her outward voyage, met with an accident and had to be repaired when she reached New Orleans, and she was not ready to sail home until March 1st, 1892. It was admitted that part of the cargo consisting of some grain, molasses, etc., was loaded at the original rates of freight, and it was also admitted that the remainder of such cargo was cancelled, that is to say, the engagements which the representatives of the owners had made (in the contemplated sailing of the ship in the ordinary course) had been cancelled as regards a considerable portion (cotton), and that more cargo from time to time was engaged, and the Main eventually sailed for Liverpool with a full cargo—some of which was at original rates and the rest was below the rates current when the policy was contemplated. The admissions may be stated in substance to come to this—that the arrangements had been made by which the cargo would have been shipped at current rates, but that only a portion of that was shipped at current rates, and the rest (which was cotton) was not shipped because the shippers could not wait, and in place of that cargo she was filled with cotton in March at lower rates. Afterwards, the ship sailed and was lost in the course of that voyage, and whatever freight was at risk was, of course, entirely lost. It seems that the actual freight payable in respect of what cargo was in fact shipped was only £3,250 5s, and that of that £950 5s 9d was paid at New Orleans on shipment, leaving only about £2,380 as the balance of actual freight at risk in the course of the voyage. The plaintiffs had taken out other policies on which they have been paid. The points raised involved this question—whether or not the plaintiffs are entitled to recover on the footing of the valuation in the policy, or whether that valuation ought to be opened so as to entitle the plaintiffs only to recorver on the footing of what was actually at risk, and that, in consequence of the payments made, what was at risk has been fully indemnified, and that nothing is recoverable. I think the policy undoubtedly attaches, and that the subject matter is at risk. That point was not really contested by the defendants. They contended that the policy should be opened, and that there should be a reduction based upon what was really at risk, and not upon the valuation. After quoting several authorities at great length on the point, his lordship said the valuation must be binding on both parties, although it turned out to be erroneous, and the actual freight at risk turned out to be very much less. As a number of accounts had already been paid, he gave judgment for the plaintiffs for the balance, £643 7s 6d less £15 paid into court.

Transatlantic telephoning would be possible if a single copper wire could be laid.

The Marine Record,

ESTABLISHED 1878.

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CLEVELAND, O., MARCH 15, 1894.

WITH the re-construction of staff in the Inland Lloyds it is now apparent that the domestic register and classification society is destined to uphold its prestige on the lakes and thereby checkmate some at least of the foreign corporations seeking patronage from vessel owners. If our lake tonnage should seek the coast, a survey and rating in a foreign book might be found advantageous at times, but at present there is no lack of native underwriting capital to take up all risks offered.

CODIFY THE RULES.

We were in hopes that some steps would have been taken at the last regular annual meeting of the Board of Supervising Inspectors of Steam Vessels, looking toward a proper codification of the laws ruling our Merchant Marine. At every annual meeting for the past quarter of a century, additions, amendments, etc., have been "roped in" to the Revised Statutes until there is hardly a pilot on the lakes thoroughly conversant with the legislation of the Board in its latest form and, in fact, many have given up the attempt in despair after a fruitless experience of repeatedly annually learning and discarding enactments, section amendments, suspended repeals, etc.

THE MARINE RECORD may follow all of these changes very closely for the benefit of its subscribers, yet the information is but given in one issue of the paper; again, the department may get out leaflets each year and enjoin local inspectors to hand around circulars showing the latest action of the board, to which after all, but little attention is given in the hurry of a season's work. Besides, the "rules of the road" once being thoroughly grounded in a pilot's memory, confusion becomes rampant when repeated changes are foisted upon him, hence our plea for a modern codification of the "Pilot Rules for Lakes, Seaboard and Western Rivers." Furthermore, where the requirements of one locality did not enforce the others, then drop useless verbiage and make the section distinct and imperative for the locality to which it applies.

It is the exception to hear a relative complaint to the "rules of the service" from the seaboard, because the international rules are in force along our coasts and those of every other maritime nation, but matters are quite different on fresh water, and pilots must obey the latest innovation introduced or held liable for a direliction of duty, in the meantime, but few are aware of the latest enactments, nor can they keep posted up in the code where so many changes are regulariy made.

It may be within the power, as it certainly is within the province of the supervising inspector general, to secure clerical help to codify the rules up to date, afterward sending copies of same to every navigating officer, pilot and master in the United States Mercantile Marine, or, against the expressed warning of the Board, must a private person publish a modern codification, it is a moral certainty that such will be done if the department does not take it in hand, for so complex has the rules become that we venture to say very few of the local inspectors themselves can vouch for many of the amendments now uppermost or in force, without consulting their little volume entitled "Key to the Laws Governing the Inspection Service," though we are not aware that even the *key* is kept duly revised without pasting clippings of circulars inside of its mysterious covers.

Should the element of expense at this time deter the chief of the inspection service from making an attempt to codify the complete rules governing the service, we would suggest that the pilot rules for seaboard, lakes and rivers be issued in a modernized form, preparatory to the greater expenditure, as the elucidation of this portion alone would be a welcome boon to at least the entire lake marine.

COMMUNICATION WITH LIGHT-SHIPS.

The various projects for opening up communication with light-ships and other off-shore stations, which have been engaging the attention of the maritime and electrical worlds during the last few years, are likely to culminate in a successful system being devised and adopted in the near future.

The possibility of telegraphing without wires has been before the minds of electricians for some years past and experts have demonstrated beyond question the applicability of such a system. Experience has shown that a telegraph wire is apt to be affected by another telegraph wire in its vicinity, even when at a considerable distance. Electric energy, it appears, may be transmitted to as great a distance as five miles, hence, the apparent disadvantage of unlooked-for contact in certain localities may redound towards beneficial results in others and be utilized for opening up communication with light-houses, light-ships and other outlying objects without any other connection or conductor than the all-pervading ether contained in the atmosphere.

In a lecture recently delivered before a scientific society of universal repute, the opinion was expressed that the transmission of messages without wire or cable within any comparative distance was only a question of financial outlay, and in fact the lecturer went so far as to hold out the prospect of our being able, by a delicate telephone apparatus, of hearing the storms that rage in the sun, or communicating with the inhabitants of Mars, providing of course, that rational beings in that far distant world are susceptible of applying a fair understanding to the signals sent along from the earth. However future attempts at signalizing with celestial objects may eventuate, the ordinary observer must have noticed that the telephone not unfrequently emits strange sounds which are commonly ascribed to electric disturbances in the outer space. The difficulty is, of course, to know whence such etheric thrills emanate. On the other hand, considering the vast strides which science has made during the past two or three decades, it is impossible to assign any limits to further discovery and invention. Scientific development in the laws of electricity seems likely to result in greater commercial essentials than present researches have brought forth along the lines of establishing telegraphic communication in places where no wires can be laid. To successfully accomplish this end electricians inform us that the "radiant electricity" is a stress of the etheric medium, which transmits energy very much in the same way as the atmosphere transmits sound.

THE NAVAL WAR COLLEGE.

To the Editor of The Marine Record:

While the United States Naval Regulations prohibit any officer from writing an article for publication, without the consent of the Honorable Secretary of the Navy, I believe that I am acting both within the spirit and letter of the law, in calling your attention to one of the most important of the many excellent government institutions of this country. I refer to the United States Naval War College, located on Coaster's Harbor Island, Newport, R. I.

This college was established several years ago under the superintendency of Capt. Mahan, U. S. Navy, whose writings, particularly "The Influence of Sea Power on History" have become standard books of reference abroad, and have reflected credit upon the Navy and the system he represented. The present superintendent is Capt. H. C. Taylor, U. S. Navy, whose high standing and ability are well known outside the Navy, as well as to the service at large. Capt. Taylor is one of the original developors and directors of the Nicaragua Canal.

One of the fundamental principles of a military organization is "In time of peace prepare for war" and this is the object of the Naval War College.

The personnel of the U. S. Navy has no superior in education or intelligence, but it lacks experience in the modern implements of war. It was the recognition of the necessity for a Post Graduate Course for all officers who may in the future be called upon to command our ships, that caused the establishment of the Naval War College. The new ships with their modern batteries and engines are the schools where most of this experience must be gained, but the Naval War College is the only place where practice and theory is combined in the preparation for war.

The immense extent of unprotected sea coast makes the preparation of plans of defence imperative, for modern fleets move so quickly that an enemy might obtain possession of important bases of operation, before a plan could be formulated in time of actual warfare. It was the completeness and detail of the German plans, formulated years in advance, that gave them the easy victory over the French in the Franco-German war. Realizing these facts, Capt. Taylor has prepared a most interesting programme of instruction for the next session, which begins in June and lasts until October. The course will combine both theory and practice. The class under instruction will include officers of all grades who can be spared from active service.

The following is a sketch of the proposed summer course:

The governing principle of the summer course of 1894 at the Naval War College will be a *problem* of Warfare. This problem will be under the consideration of the class during the whole term, and each officer will be invited to offer a solution at the close of the term.

This problem is the topic, toward the solution of which all the summer work, (except in International Law,) should be directed. The lectures, the practical exercises, the personal examination of localities, will be so arranged as to converge throughout the course toward this problem at the close. In other words, such things will be learned and practiced as will better enable the officers to thoroughly master the material situation presented in the problem.

The operations to be considered are divided for convenience into the three branches of Strategy, Tactics, and Naval Coast Defence. Under these heads fall minor subjects to be studied and discussed, such as signalling, torpedo tactics and tactics of the ram; camps and operations on shore of our seamen and marines; types of ships to be used in the Problem; strong bowed vessels for ramming; heeling of ships after being rammed; types of yachts and tugs for torpedo boat catchers and scouts; how improvise rams from vessels in vicinity; floating work shops; cleaning bottoms; types of engines of ships in the Problem; boilers struck by enemy's shots; dislocation of boilers or engines when ramming; accidents to torpedo boat engines; quick delivery of coal from bunkers to furnaces in action; economy of coal; possibilities of liquid fuel; how best keep ready to move without undue expense of coal; best coal attainable for campaign.

Care of the wounded under the condition of the Problem; best positions for temporary hospitals ashore; base of hospital supplies; general hygiene of the fleet in the Problem; diet and clothing to assist endurance of crews during winter campaigns, especially crews of torpedo boats; best water attainable without distilling; supplying the fleet and the shore stations of its base, lookouts, signal stations and hospitals; coaling and provisioning torpedo boats; railroads to be used in bringing forward provisions and ammunition from permanent base of supplies, and methods of distribution from railroad termini; arrangements for watering ships' boilers; number of cars needed to transport reinforcement of men; number of flat cars for guns and machinery; establishment of coal bases; the concentration of scows or other means of coaling, and the supply of these bases from permanent bases.

Manning and officering fleet and flotilla; importance of naval reserve in this campaign; importance of their instruction in manning the commanding torpedo boats, coast defence vessels, and of their intimate acquaintance with adjacent waters.

The general system of the summer course will, therefore, be a course of lectures in International Law, and also a series of lectures and exercises, treating in the beginning of the different branches of the Art of War in their general aspect, their history and their fundamental principles. As the class advances, the lectures and exercises will be concentrated upon those historical examples and principles which illustrate the conditions of the Problem. Finally, the latter part of the course will be devoted to the actual problem itself. The lectures will give the needed strategic data. Constant practice with the war games will give the mental practice required. Personal examination of the various localities will correct errors due to use of charts alone, and free but methodized discussions among the members of the class will materially assist in forming correct judgments.

Probably no portion of the extended coast system of the United States requires such close study as the Great Lakes. All other portions are well known to officers of the Navy, but this section is a sealed book to all except the few who have served on the U. S. S. Michigan. It is needless to refer to the proximity of England (Canada) and her possession of the only canals by which war vessels can enter the Lakes, or to the fact that lake cities are without protection from an enemy. These facts are well known to you and to all familiar with the Lake region.

The Naval War College is established for the express purpose of studying these conditions and of preparing plans for such emergencies as may arise. As a personal visit of the class to the sections of country involved in the problem for protection is a part of the course, it is evident that much good will be done by this series of investigations.

I have called your attention to these facts in hope that you may consider them of sufficient importance to this section and to the country at large, to write an article on the subject. It is earnestly hoped that Congress will pass the necessary appropriation for the maintenance of this most important institution. I understand that the Hon. Secretary of the Navy has strongly recommended this appropriation.

NAVY.

NEW CONSTRUCTION.

The Cleveland Ship Building Co. has just closed a contract to build for the Minch estate, Capt. William Gerlach and others, a large steel steamer for the coarse freight and package carrying trade, which will cost, it is stated by the officers of the company, some $40,000 or $50,000 less than any steamer of similar construction ever cost to build on the lakes before. The new boat will be in many respects a duplicate of the steamer Alva, of the Bradley fleet, which the same company built last year. The new boat will be 345 feet long over all, with 324 feet keel, 42 feet beam and 26 feet 3 inches depth moulded. She will have triple expansion engines with cylinders 20, 33 and 54 inches in diameter, by 40 inches stroke. Steam will be furnished by two Scotch type boilers, 12 feet 4 inches by 13 feet, tested to 160 pounds pressure. The boat will be built of open-hearth steel throughout, all plates, angles and boiler steel coming from the Carnegie Steel Co., Limited, and will be constructed under the special survey of the Bureau Veritas, Capt. Herriman, the lake representative, being down from Chicago Wednesday to arrange preliminary details and to look further into the specifications. She will have an unusually heavy build, with a view to obtaining lower rates of insurance than prevail at present. She will have four gangways at each side, with hoisting apparatus at each gangway, and will be supplied with the usual steam windlasses, capstans and steam steering gear, and an electric lighting plant.

Several lake shipbuilders have filed bids with the Pittsburg, Shenango & Lake Erie for the construction of two or more ferry boats, a steamer and consort for carrying railway cars across Lake Erie. President Dick, of the railway company, is absent in the South, but the bids will probably be opened immediately upon his return.

Pickands, Mather & Co. are receiving bids for a large steam fueling scow to be placed at Ashtabula, where they have already one scow in operation. The contract will be awarded in a few days.

OBITUARY.

George Henry Schoof, well-known on the lakes as engineer of the steamer Griffin, died at the marine hospital last Sunday morning, after two months' serious illness with a malignant cancer, the result of a blow on the neck received from a fender while the boat he was on was coming up to the dock last summer. Mr. Schoof was a prominent Mason and Odd Fellow, being a member of Bigelow lodge of the former fraternity. There was a large attendance at his funeral which was conducted from Bigelow lodge Tuesday, eighty-six members of Cleveland Lodge No. 2, E. M. B. A. being present. Mr. Schoof was born in the province of Hanover, in Bavaria, and has no relatives in this country. He has been on the lakes for seventeen years, having charge in turn of the machinery of the Superior, M. B. Grover, Hesper, Pasadena and Griffin. M. M. Gleckler has been appointed administrator of the estate.

* * *

Capt. Alex. Wilcox, one of the oldest, best known and most highly respected citizens of Amherstburg, passed to the silent majority on Friday evening the 10th, after only a three days' illness, aged 72 years. Deceased was born in Rochester, N. Y., in 1822, lost his parents when a child and was brought to Amherstburg before he was four years of age. At fifteen years of age he began sailing. When quite a young man he secured captain's papers and for many years commanded tug boats on the lakes. He was in the employ of Wilcox & Trowbridge and sailed the tugs L. L. Lyons, Bob Anderson, G. B. McClellan and others. One season he commanded the passenger steamer Florence, plying between Fort Erie and Buffalo, and was also commander for some time of the side-wheeler Red Eric. He was mate with Capt. John Duncanson on the tug Metamora the first season the captain sailed that tug, some time in the 50's. He was a shipmate with the late Capt. S. B. Grummond, with whom he also sailed as mate.

LAUNCH OF THE HARVEY H. BROWN.

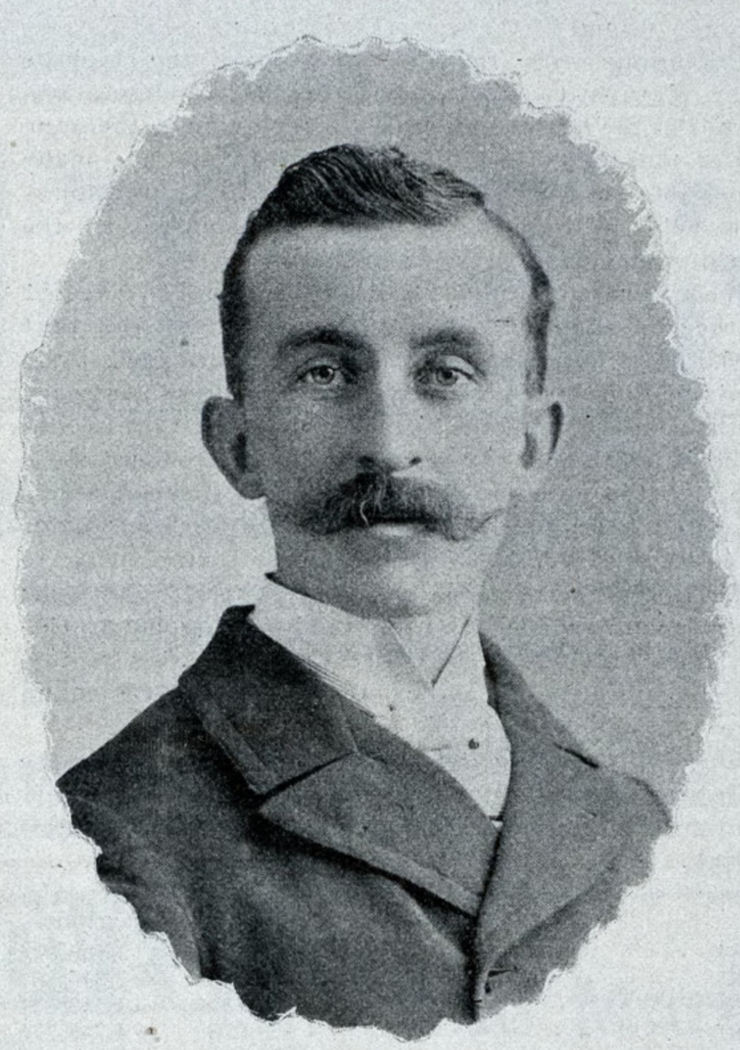
The steel steamer Harvey H. Brown was successfully launched on Wednesday afternoon from the Wyandotte yards of the Detroit Dry Dock Co. She was built for a syndicate, E. M. Peck being managing owner, but Mr. Brown, in honor of whom she is named, is largely interested in her. The Brown is the steamer which was finished almost ready for launching about the close of navigation last year, when her owners decided they would sheet her bottom with four inch planking. The timber was yet in the logs when this decision was reached, and the work of planking the boat has kept a large number of men employed throughout the winter. The general dimensions of the Brown are 362 feet over all, 342 feet keel, 42 feet beam and 25 feet molded depth. She is a straightback on the center lines, but has one foot rise aft and two feet forward, in order to make her appear straight to the eye. She is in dimensions and general appearance similar to the Selwyn Eddy, but her machinery duplicates that of the Maryland and E. C. Pope. Her triple expansion engine has cylinders 22, 35 and 56 inches in diameter by 44 inches stroke of piston, and will be supplied with steam from cylindrical boilers 14 feet in diameter and 12 feet long, fitted with Howden's forced draft. All the plating is double strapped, the joints being made equal in strength to 85 per cent of the solid plate. The deck stringer is a single plate, three-quarters of an inch in thickness, with a joint of 86 per cent of the solid plate. All the joints have a surplus of 18 to 20 per cent in rivet power.

The Brown's water ballast tanks will hold about 1,000 tons of water. She will carry about 5,000 tons on a 20-foot draft, but her plank sheathing will increase her draft, according to the figures of Superintendent Frank Kirby, almost five inches. She will carry two pole spars forward. The Brown will be commanded this season by Capt. E. C. Gatfield, with Capt. Joseph Powell as mate.

PRESIDENT M. E. B. A. NO. 2.

The accompanying portrait of R. L. Peck gives us the opportunity to state that the Cleveland branch of marine engineers have chosen a representative member of their society as president for the ensuing term.

Mr. Peck is a native of Connecticut and brought out



R. L. PECK.

the Union Line steamer Owego in 1888. He is now chief engineer of the Mariska of the Minnesota Steamship Co.'s Line, Cleveland, O.

STILL ANOTHER CANAL SCHEME.

There was submitted at last Friday's meeting of the House River and Harbor Committee a measure urged by Rep. Keifer, of Minnesota, for the survey of a canal route connecting Lake Superior with the Mississippi river. It is proposed by this plan to utilize the small streams at the source of the Mississippi as connecting links in a canal joining the Gulf of St. Lawrence with the Mississippi. Mr. Keifer has letters from the United States engineer officer stationed at St. Paul stating that the plan is entirely feasible. A private corporation has also been organized at Duluth to undertake the work. The projected canal is to have a width of 120 feet and a depth of 20 feet. It is also urged that it could be utilized to store the upper waters of the Mississippi and prevent the overflows which are so disastrous to the lower Mississippi. The committee considered the plan as one proper to come before the committee, and Mr. Keifer will urge it there, a bill having been already referred to that committee.

NEW CANADIAN TRANSATLANTIC SERVICE.

By the agreement which Mr. Huddart has made with the Canadian Government, and which will be embodied in the shape of a contract as soon as Parliament has given the necessary authority for a subsidy of $750,000 per annum, the fast steamship service across the Atlantic is to be in operation by the spring of 1896. Mr. Huddart three weeks ago presented a comprehensive and workable scheme for the Atlantic line, and, having previously inspired the Government by his enterprise with confidence in his ability, they had no hesitation in agreeing to enter into a contract. When the Huddart service is in actual operation as proposed, passengers and mails will be carried from England to Australia within 25 days. The journey across the Atlantic will be made in from five to six days. The Canadian Pacific Railway Company will reduce the running time of its trains from ocean to ocean to four days, while the Australian steamship service will also be accelerated.

APPOINTMENTS OF MASTERS AND ENGINEERS.

B. L. Pennington, Cleveland, O.: C. B. Lockwood—captain, Richard Jollie; engineer, John B. Millen. George Spencer—captain, J. B. McManus; engineer, C. W. Stedman. Schooner B. L. Pennington—captain, C. W. Lockwood.

C. T. Morley, Marine City, Mich.: Lawrence—captain, Ralph Byrns; engineer, S. O. Durrant. J. J. Hill—captain, John Andrews; engineer, A. A. Cameron.

A. A. Parker, managing owner, Detroit, Mich.: John Oades—captain, Tim Lemay; engineer, James Falconer. A. A. Parker—captain, J. T. Hutton; engineer, Joseph McKittrick. Minneapolis—captain, H. W. Bogart; engineer, John Mogan. John Pridgeon, Jr.—captain, D. N. Sherwood; engineer, H. Mahoney. Schooners, B. W. Parker—captain, Edward Lohr. Red Wing—captain, John Anderson. San Diego—captain, Henry Morey. Saveland—captain, Charles Woods.

James McMillen, managing owner, Detroit, Mich.: Iron King—captain, William F. Millen. Iron Chief—captain. Sidney J. Millen. Iron Duke—captain, Norman L. Miner. Iron Age—captain, William A. Irvine. Schooners, Iron Queen—captain, Albert J. Mahon. Iron Cliff—captain, Thomas Fitzsimmons. Iron State—captain, W. W. Carter. Iron City—captain, M. J. Pidgeon. Passenger steamer Greyhound—captain, John Robertson.

Parker & Millen, managers, Detroit, Mich.: Steamer B. W. Blanchard—captain, Thomas Meikleham; engineer, E. McTilley. Tugs, Saginaw—captain, Thomas Hayes; engineer, Neil Maitland. Balize—captain, Hugh W. Hagan; engineer, D. W. Blauvett. Onaping—captain John E. Tobin. Favorite—captain, Martin Swain; engineer, E. W. Tilley. The foregoing shows a list of twenty-two vessels in the hands of the well known firm of Parker & Millen, managing owners, Detroit, Mich.

Members of the Ship Masters' Association, No. 2, Port Huron, Mich., are appointed as follows: H. E. Runnels—captain, A. J. Bonnah. Iosco—captain, David Hutchison. Mary Groh—captain, Lew Carey. Point Abino—captain, William Curtis. S. Langell—captain, H. Zealand. Rhoda Stewart—captain, E. Rice. Cleveland—captain, Daniel Sinclair. George J. Brockway—captain, R. P. Thompson. Wm. F. Merrick—captain, W. B. Harrow. C. D. Thompsou—captain, Alonzo Cox. T. D. Stimpson—captain, John Hayes. Tampa—captain, John Ivor. Kittie Haight—captain, Maine. Nipigon—captain, Arthur May. Roanoke—captain, J. W. Martin. Sparta—captain, Thomas Harbottle. J. Kendall—captain, H. J. Kendall. Manitoba—captain, E. H. Anderson. Alberta—captain, James McAllister. Mary—captain, S. H. Burnham—Christopher Columbus—captain, John McArthur. Thos. Wilson—captain, E. Chambers. Servia—captain, Chris Smith. Porter Chamberlain—captain, Charles Black. Pueblo—captain, Fitzgerald. Gogebic—captain, William Neal. Arnold—captain, Neal. Pawnee—captain, Ezra Davis. J. E. Mills—captain, Ellery. Nelson Mills—captain, Warwick. Kittie Forbes—captain, John Bradshaw. Newaygo—captain, H. Flick. Clinton—captain, H. Maitland. J. E. Spinner—captain, Laframboise. J. H. Farwell—captain, Donald Duncanson. Capt. John C. Pringle has been appointed master of Boardman's yacht.

Goodrich Transportation Co., Chicago, Ill.: Virginia—captain, H. E. Stines; engineer, G. P. Roth. Indiana—captain, A. Gallagher; engineer, R. Flint. City of Racine—captain, J. M. Gee; engineer, Wm. Parker. Atlanta—captain, William Nicholson; engineer, B. Beerman. City of Ludington—captain, John Raleigh; engineer, John Bushman. Chicago—captain, George Wittey; engineer, G. Neidert. Muskegon—captain, Edmond Carns; engineer, T. Dorsey.

Northern Michigan Transportation Co., Chicago, Ill.: Petoskey—captain, W. P. Robertson; engineer, Thos Collins. City of Charlevoix—captain, William Finucan; engineer, Fred D. Philps. Puritan—captain, Peter McGuiggan; engineer, James Myers. Lawrence—captain, Joseph Boyd; engineer, Frank Bowen.

Republic Steamship Line, Buffalo, N. Y., M. M. Drake, manager: Brazil—captain, Joseph Nulligan; chief engineer, Albert Edgar. America—captain, James Gibson; engineer, John H. Haig. Maytham—captain, A. B. Drake; engineer, Robert J. Close.

Truman Moore, Lorain, O., has made the following appointments: Schooners, Alice B. Norris—captain, John Robinson. Kate Winslow—captain, William Duff.

Lackawanna Transportation Co., Buffalo, N. Y.: Grand Traverse—captain, John B. Green; engineer, Edward A. Carter. Russia—captain, Henry Murphy; engineer, William Brown. Lackawanna—captain, Frank Weinheimer; engineer, W. B. Lewis. Scranton—captain, J. H. Green; engineer, Charles Van Avery. Florida—captain, Henry McAdams; engineer, George M. Wise. Wyoming—captain, Henry Ferguson; engineer, John Hess. Cuba—captain, Robert Young; engineer, E. M. Murdock. Arthur Orr—captain, C. J. Montague; engineer, Thompson Pike. J. W. Moore—captain, Richard Neville; engineer

D. & C. Steam Navigation Co., Detroit, Mich.: City of Detroit—captain, Alex J. McKay; engineer, William S. Huff. City of Cleveland—captain, Dugald McLachlan; engineer, John Sargent. City of Alpena—captain, Mathew Lightbody; engineer, John Jones. City of Mackinac—captain, H. J. Slyfield; engineer, William McDonald, City of the Straits—captain, Duncan McLachlan; engineer. James Middleton.

J. Emory Owen Transportation Co, Detroit, Mich.: John Owen—captain, E. F. Thorpe; engineer, S. L. Phillips. J. Emory Owen—captain, J. P. Young; engineer, M. Delaney. Schooner Michigan, captain, F. J. Cadotte.

Capt. Telford will command the Canadian steamer Cambria this season. Capt. McMaugh will continue in command of the Algonquin and Sam Brisben is engaged as chief engineer. The Algonquin is now fitting out at Owen Sound.

The two large schooners building by H. M. Bean, at Camden, Me., will have their complete outfits of boilers, engines, windlasses, pumps, piping, etc., from the American Ship Windlass Co., of Providence, R. I.

SENSATIONS OF DROWNING.

To stand helplessly on the river shore and witness the struggles of a drowning fellow-being is a harrowing experience, and little less heartrending to contemplate, but, in matters of this kind, like many others, "things are not what they seem." At any rate, death by drowning is not as horrible as it may seem to the onlooker. The thought of being dragged along the muddy bottom of the river and found later in some out-of-the-way, willow-tangled spot is what adds to the horrors of such a death. The dread of such a fate is really worse than the fate itself. I once left this world by that route as nearly as one can and get back. It was an accident, and was some twenty years ago.

A companion and myself were bathing in the Ohio river. At the point where we were a large raft of logs was lashed to the bank, and for quite a long while we amused ourselves by jumping from the raft into fifteen feet of water to see who could bring up the largest number of white gravels each time. We went down several times with varying success. The last time I made the effort I filled my lungs with air and leaped far out into the river and went to the bottom head first. I groped about for a handful of gravels and spent more time in the search than I should have done. The water was warm, however, and I had no fears of drowning. When I could stay down no longer, I started swiftly for the surface, and when within a foot or two of the top of the water, my companion, not knowing exactly where I was, jumped headlong in the river. His head struck me squarely between the shoulders and knocked the last ounce of air out of my lungs, and a deluge of water at once took its place. The weight of his body falling on me produced a terrible shock, and I sank to the bottom of the river like a stone. That is where I got my experience in drowning. When the water rushed into my lungs and stomach it felt for all the world like a pleurisy pain, which has also given me a tussle in later years, but was over in a second. Then my body settled quietly to the bottom and my arms fell limp at my side.

In my half conscious condition I could see all my relatives and acquaintances crowding about and looking down on me with tearful faces. All the events, it seemed of my prosy career passed slowly in review, and the good, bad and indifferent acts stood out before me in bold relief. Even little school boy tricks claimed attention. I knew I was drowning and remember thinking, "Why, this is not so hard after all!" I wondered where my body would be found, and shuddered at the thought that it might never be found. I also wondered whether or not my companion had become alarmed and run away and left me to my fate, or whether he was diving here and there to find me. Then I pictured my burial, and how the clods would resound on my coffin when it was lowered into the chilly grave, and my fate would be pointed out to other boys by anxious mothers as a warning.

At the next stage I could hear bells softly ringing in the distance together with little tinklings and chirrups sounding in my ears. Then I began to see pretty pictures. The colors of the rainbow danced before my eyes and intermingled and formed into all sorts of odd shapes. I had no pain and no fear of what was expected to follow. I seemed to be enchanted at the scene before me. Everything was light and calm and moved about without any visible impelling force. It was like looking into a large mirror with every beautiful thing that the most vivid imagination could conjure up revealed thereby. The last stage which I entered increased the beauty of the surroundings. All discordant noises ceased and were superseded by the softest, sweetest music that could be thought of. Apparently I had been transported to a place flooded with bright, calm sunshine. It was neither too hot nor too cold, but seemed like a clear autumn day. Then I seemed to rise from the ground and float off into space like thistle down. Higher and higher I went until I seemed to look down on the world from a great height, and then came a blank. The next thing I knew I was lying on the raft with my companion looking down on me with a pale face. After several unsuccessful attempts he had succeeded in finding me and getting me out of the water. By vigorously rolling me over a log he had succeeded in rekindling the spark of life that remained. For the next half hour I think I suffered a great deal more than for the same length of time before or since. I shall never forget how it feels to drown, but would not advise any one to try it to find out for himself. Resuscitation is too painful.—*Mr. C. A. Hartley in the Cincinnati Times-Star.*

CARE OF BOILERS.

A writer in *Power* says: "During my twenty years' experience with steam boilers, I have taken note of the following points: A boiler should never be blown out while hot. Portable tubular boilers should stand at least twelve hours after the fire is out before letting out the water. Stationary boilers should stand long enough to allow the brick walls to cool. I usually let my boilers stand from eighteen to twenty-four hours, and by so doing I keep the dirt in solution and can wash it out without any trouble. In case there is any scale I use a boiler pick and a good scraper. When there is any lime in the water, the latter should pass through a good purifier before being pumped into a boiler. Water should never be pumped into a boiler cold, as it makes hard firing and allows all the impurities in it to enter the boiler. In case the scale is hard, and cannot be easily removed, saturate it with coal oil before filling the boiler with water. This will loosen the scale without harm to the boiler. A good skimmer properly constructed and properly attended to will do much toward keeping a boiler clean, but cannot be relied upon. All boilers should be opened and thoroughly cleaned at least once in two weeks, as they are often burned by relying on some automatic device for keeping them clean that fails to do its work."

THE MINES OF MICHIGAN.

State Labor Commissioner Morse, of Michigan, has compiled part three of his report, which is an exhaustive review of the work of the mines on the northern peninsula. The commissioner vouches for the absolute reliability of the figures, which were prepared, he says by one of the leading authorities upon mining statistics. A resume of the report is as follows:

Beginning with the discovery point, the Jackson mine, Marquette county, in the year 1844, Michigan now stands at the head of all states in the union in the number of tons of iron ore mined each year, and has made it possible for the United States to gain the position it now holds as first in the list of all countries of the world producing iron ore and pig iron.

When it is said that $30,000,000 is actually invested in the iron mines of Lake Superior so called, and that $180,000,000 have been placed in the mines and in the equipment of docks, railways and boat lines necessary to the conducting of the business, the place that capital holds is apparent. The amount of ore produced since the time the mines were first opened is enormous. Up to and including the year 1893 the three Michigan fields have shipped 73,936,827 gross tons. Contributing to this the Marquette range has credit for 40,971,000 tons; the Menominee 18,032,311 tons and the Gogebic 14,933,516 tons. Including the entire Lake Superior region, which embraces the mines of Minnesota, the grand total tonnage is 80,390,352.

Showing the rapid and steady gain in production the following figures giving the number of tons annually sent out for each of the past ten years will prove interesting.

Year.	Michigan mines.	Entire lake region.
1884	2,417,113	2,506,814
1885	2,258,249	2,516,201
1886	3,126,517	3,558,571
1887	4,170,078	4,748,276
1888	4,283,926	5,046,503
1889	6,054,249	7,282,644
1890	7,678,637	9,003,701
1891	6,063,814	7,091,981
1892	7,628,598	9,069,556
1893	4,300,000	5,933,196

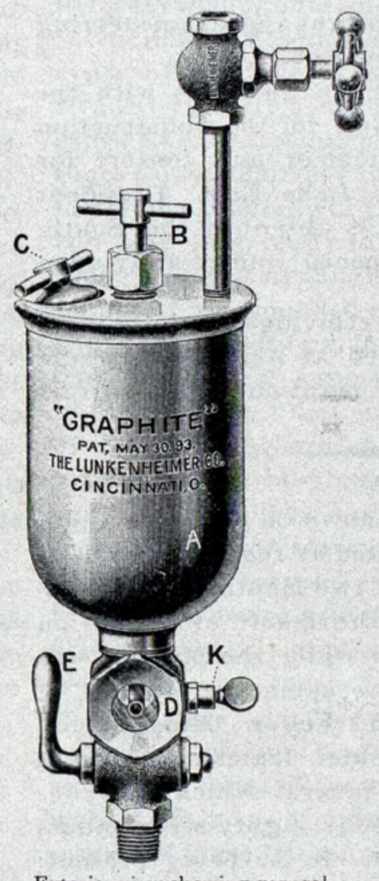
The great falling off in shipments from Michigan mines for the year 1893 as compared to 1892 and previous years is noticeable. In 1892 all former records were eclipsed with the exception of 1890, but it will be seen that the entire Lake Superior output was in excess of any previous year. In 1892 Michigan produced 46.29 per cent of the ore mined in the United States.

In 1893 thousands of men who were forced into idleness sought employment in other fields, but other mining fields were experiencing similar troubles as those of Michigan. A few of the mines continued in operation, giving place to a number of men. Some of these arranged to supply the men with provisions until such time as they could raise the money to pay them, this depending upon the condition of the market and promptness of buyers to meet maturing paper. But there was a severe cut in former wage rates of those who continued in employment, this being due to the fact that ore had fallen in price at least $1 per ton, and there was no other way of meeting the reduction than by lessening the wages of the men employed in the mining. Men who had formerly earned $1.50 as surface men and $1.70 as miners were reduced to $1 and $1.50 respectively, and this on what is known in the mining region as the "company account" plan. This is for a stipulated wage per day. By far the largest portion of iron ore mining is done upon the contract system, the miner receiving so much per ton of ore broken and placed in skips, or else so much per foot of ground drifted or sunk as the case may be. By this system men make much more than by the company account plan, as each man is virtually a contractor in himself and his success is dependent upon his own exertions. The net earnings of these minor contractors have averaged about $2.35 per day since 1884 until 1893, when they fell to $2.11 during the first nine months, and during October and November dropped to $1.54. These figures allow, of course, for deduction for oil, candles and explosives.

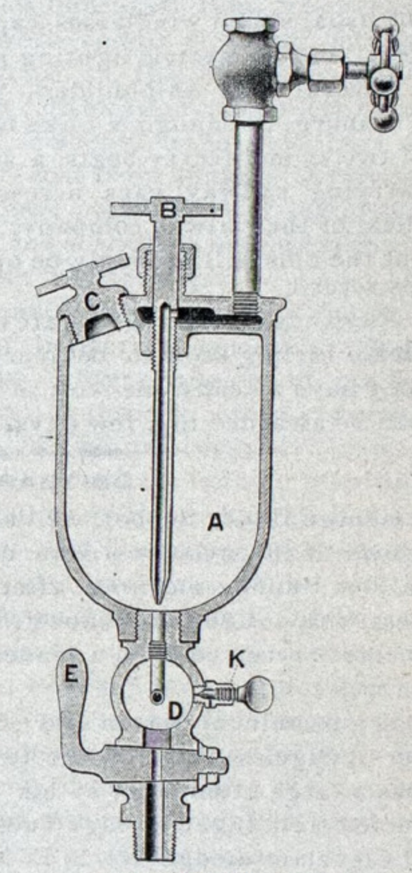
A statement that natural labor was no longer entitled to consideration in figuring upon the cost of iron ore, for the reason that the innovation of the steam shovel had shown that it was to do the man's work in the future is bitterly resented by the mine owners and the miners of the Michigan fields. This they say is unfair, because untrue. There were 16,036,043 tons of iron ore mined in the United States in the year 1892, and not one pound was raised by the steam shovel. Of the 24 states producing ore in 1893, only one employed the shovel instead of the miner, and that at three mines of the many possessed; and the total tonnage of iron ore so mined amounted to less than 200,000 tons.

LUNKENHEIMER'S GRAPHITE SIGHT-FEED LUBRICATOR.

Herewith is illustrated a lubricator, that not only feeds the graphite automatically and continuously in desired quantities, but also does it visibly, by passing through a sight-feed. The cup should be attached like any ordinary sight-feed oil lubricator to the steam pipe above the throttle, but can also be attached below the throttle or on the steam chest, with the upper steam connection above the throttle. In the cuts A represents



Exterior view showing general appearance of cup.



Sectional showing interior construction.

the Graphite reservoir; B, the Graphite regulating value; C, filling plug; D, bulls-eye sight-feed chamber; E, feed regulating valve, and K, drain valve. The manufacturers, The Lunkenheimer Co., Cincinnati, O., will take pleasure in furnishing our readers with further information concerning this specialty.

NOTES.

THE Magnolia Metal Co., of 74 Cortlandt street, New York, have published a sheet containing half-tone engravings of 22 different bearings as they appeared after being tested.

"To California and Back by the Santa Fe Route." The most Attractive American tour. A new descriptive book with the above title, containing over 150 pages and as many pen and ink illustrations, sent free on receipt of 4 cents in postage, by John J. Bryne, 703 Monadnock building, Chicago, Ill.

THE marine underwriting does not appear to be a business at which Americans are successful. But when they recognize the fact, of the absolute necessity of this interest as an integral part of maritime power, they will study it and make a success of it as they will of building, owning and managing ships. No small part of the hold that England has on marine power is due to the extent and greatness of her marine underwriting industry.—*Maritime Register.*

THE Lackawanna Lubricating Co., of Scranton, Pa., has kept its large plant in operation on full time right along, and since January 1 orders have been increased to such an extent that additional machinery will have to be put in to fill them. This company manufactures compression grease cups, cylinder lubricators, lubricating compounds, brass and copper castings, and makes a specialty of electrical repair work. The January business of the company was the best it ever had,

THE Roberts Boiler Works are trying to fill their orders by working nights. Within the past week they have taken orders (among many others) for two large boilers for the new steel twin screw steamer being built by Marvel, of Newburgh; also a boiler for the new 85-foot yacht being built by the Gas Engine & Power Co. The large boiler for the steam yacht Restless, of Buffalo, is well under way, and the boiler for the quarantine steamer, State of New York, will probably be shipped this week. This takes the place of the Cowles boiler previously in this vessel. The New York office of this company has been removed to larger quarters in the Taylor Building, 39 and 41 Courtlandt street, New York City.

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WALTER F. COBB, Vice President and Treasurer.

W. I. BABCOCK, Manager.
O. R. SINCLAIR, Secretary and Asst. Treas.

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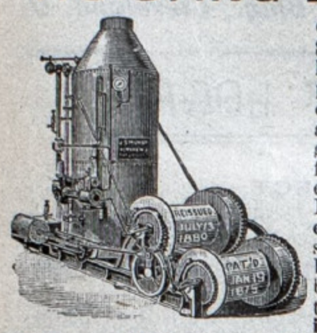

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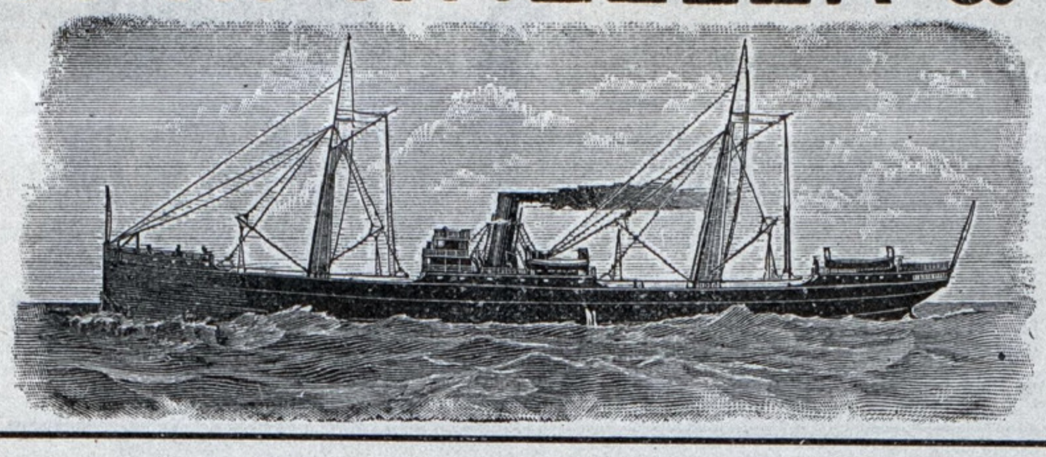

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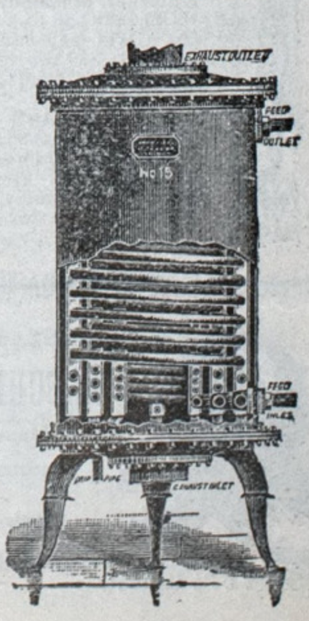
No straight tubes to leak.
No contact of the water with steam or iron.
No chance for grease in the boiler.

is pre-eminent in SIMPLICITY, EFFECTIVENESS and CHEAPNESS.



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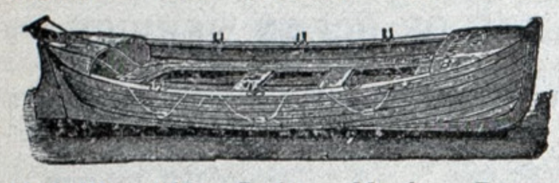

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Passenger and Freight Steamer, Mabel Bradshaw, Muskegon, 16 and 28x.6.
Ionia, Grand Haven, 24 and 46x42.
Survey Steamer, W. S. Hancock, 12 and 21x20.
Mark B. Covell, Manistee, 18 and 30x26.
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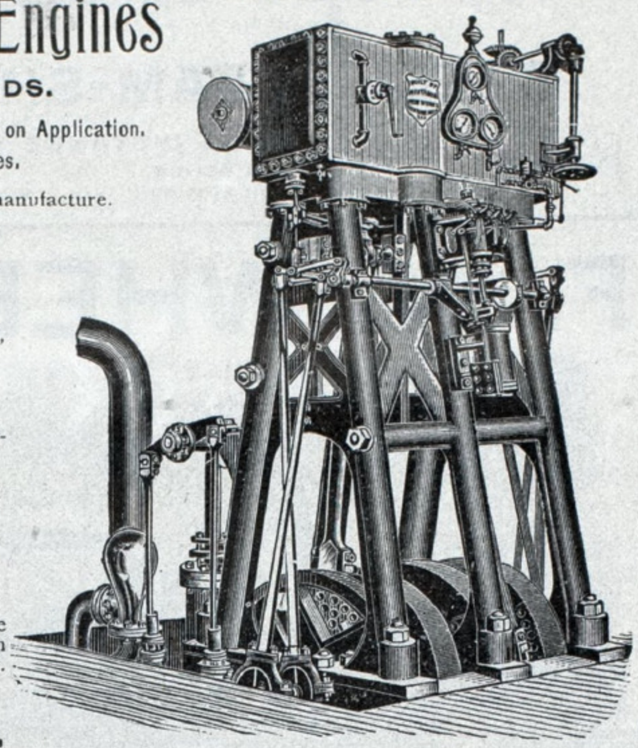

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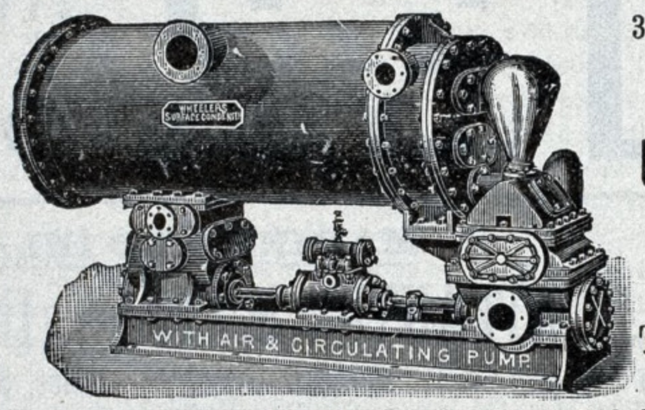

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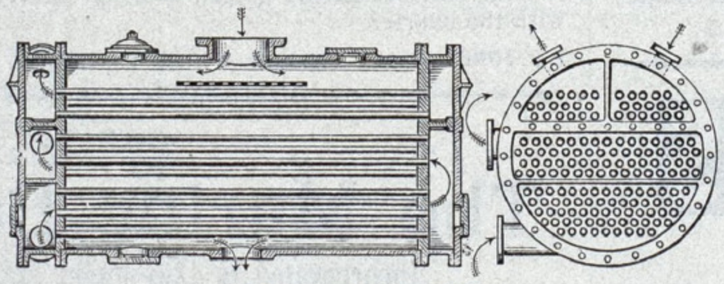

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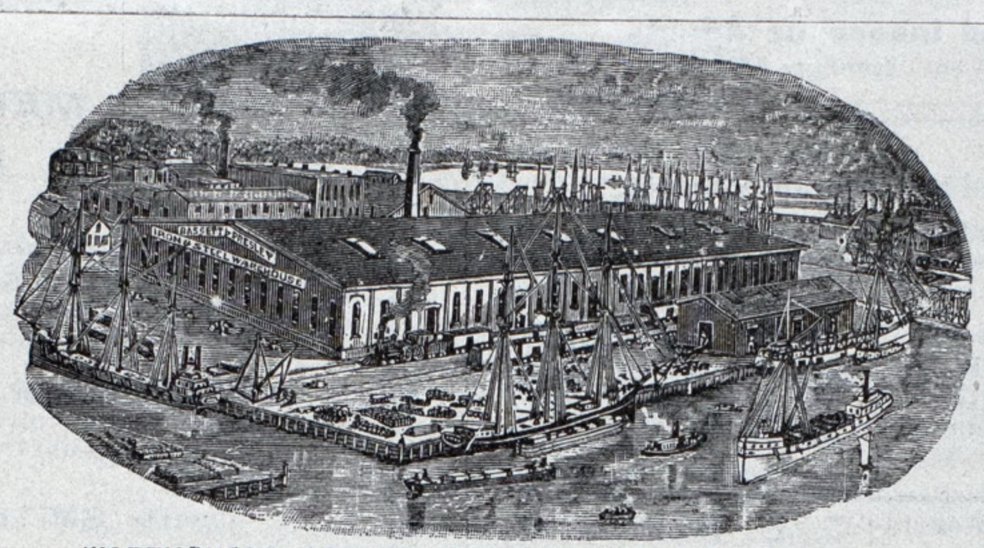

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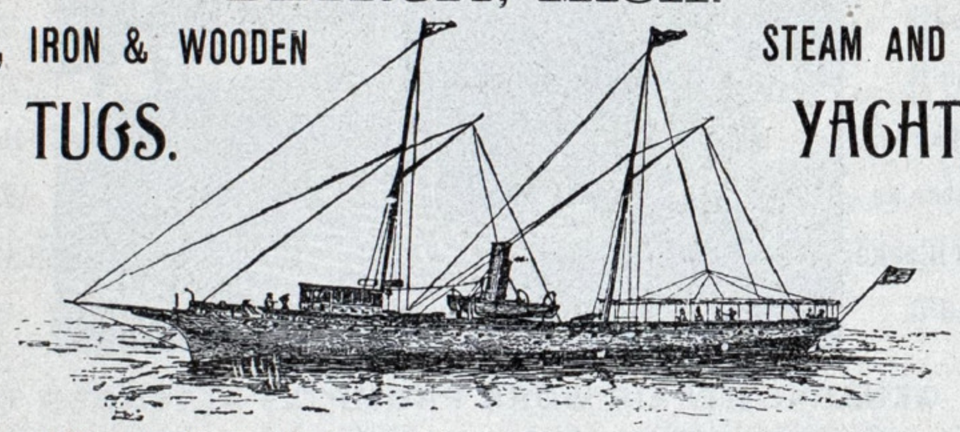

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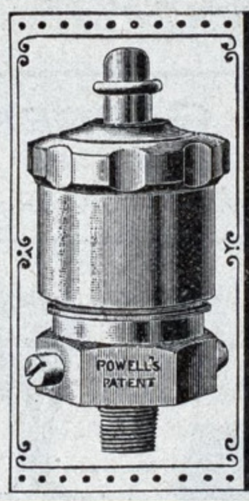

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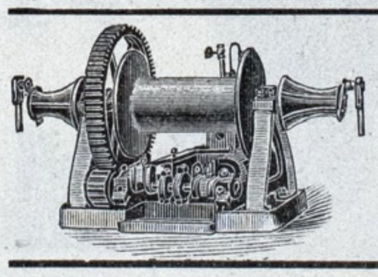

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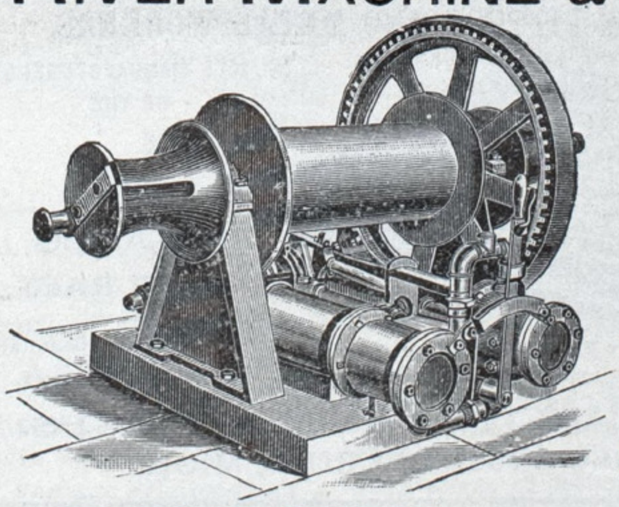

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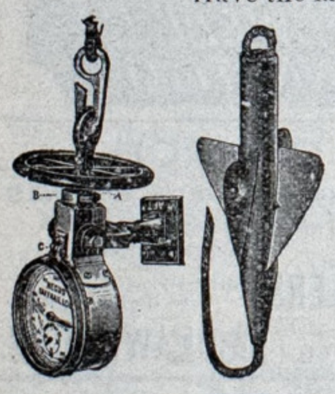

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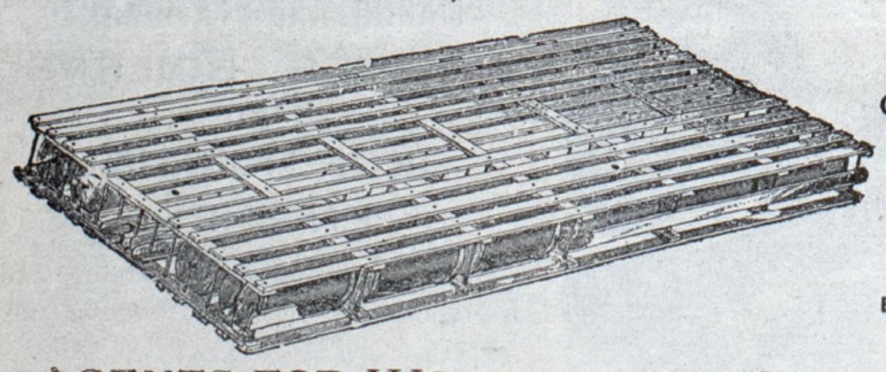

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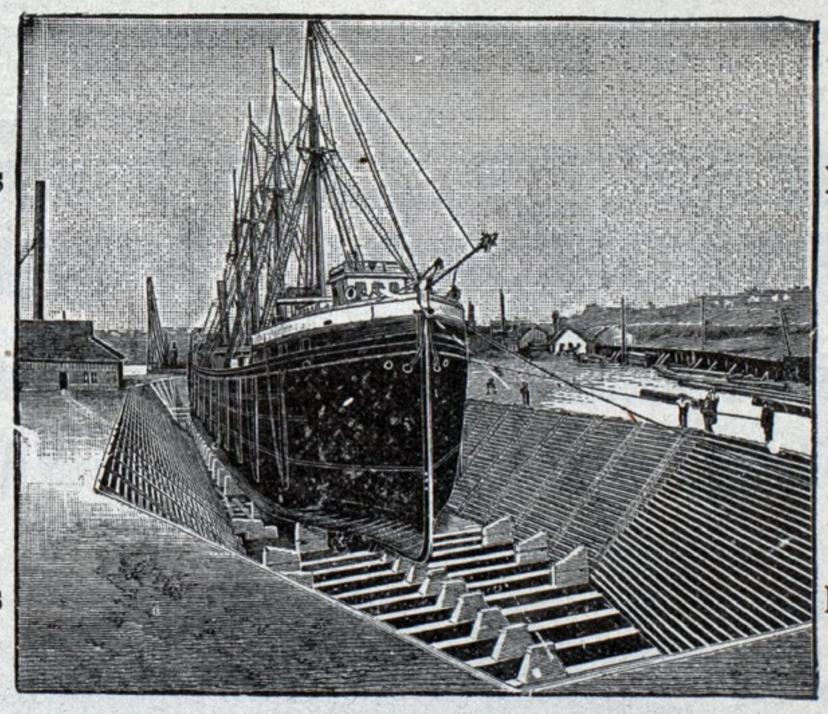

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